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NAME OF AUTHOR/*NOM DE L'AUTEUR* JEAN P. McINTYRE

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NAME OF SUPERVISOR/*NOM DU DIRECTEUR DE THÈSE* Dr Patricia McFetridge

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DYSFLUENCY AND AUDIENCE: THE ORAL PRESENTATIONS OF GRADE SIX CHILDREN

by

© JEAN P. McINTYRE

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH

IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE

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THE UNIVERSITY OF ALBERTA

FACULTY OF GRADUATE STUDIES AND RESEARCH

The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research, for acceptance, a thesis entitled Dysfluency and Audience: The Oral Presentations of Grade Six Children

submitted by Jean P. McIntyre

in partial fulfilment of the requirements for the degree of Master of Education

D.M. Deltridge
Supervisor

Lois Mardenfeld

J.G. Paterson

Date Oct. 17, 1978

ABSTRACT

Investigations of dysfluency in oral language have considered it in relation to a speaker's linguistic competence, or as a reflection of the emotional state at the time of speaking which affects performance.

This study examined the effect of three different audiences upon the oral language of twenty-four Grade Six children in terms of their degree of dysfluency, rate of utterance and lengths of presentation in each situation. The children spoke extemporaneously after some preparation, to audiences composed of listeners who were variously familiar or less familiar, and of equal or unequal peer group status with them. The effects of the subjects' intelligence, socio-economic status, sex, three personality traits, and the extent of previous exposure to formal speaking situations were also considered.

Tapes of each presentation were transcribed and analysed for four main categories of dysfluency - interjections, repetitions, false starts, and non-vocal hesitations. Measurements of time spoken and rate of utterance were also made. A statistical analysis yielded means, standard deviations and Pearson product-moment correlation coefficients for nineteen variables.

Results of the analysis indicated that while audience composition did not significantly affect dysfluency levels for the group of speakers as a whole, there were differences when other variables were considered, particularly those of sex, socio-economic status, and degree of previous speaking experience, with one of the three audiences having a less disruptive effect than the other two.

Length of presentation was found to be an individual characteristic, widely variable, and unrelated to audience composition or to other factors. Rate of utterance and dysfluency levels were inversely related, but otherwise, this appeared to be a non-significant measure.

The findings suggest that speaker-listener interaction does produce performance changes and this should be taken into consideration when competence is being assessed.

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CHAPTER I

THE PROBLEM, ITS NATURE AND SIGNIFICANCE

If your lips would keep from slips,
Five things observe with care:
To whom you speak, of whom you speak,
And how, and when, and where.

William Edward Norris (1847-1925)

Whilst the opening quotation cannot be regarded, certainly, as immortal verse, it provides a neat comment on the problem of dysfluency, which is the subject of this study.

Dysfluency

Fluency has to do with the ease and smoothness of initiation and transition from one speech sound and one articulatory position to another. Perfect fluency, however, only occurs when all aspects of speech and language function perfectly. Normally we experience a certain amount of interruption of various types. These can take the form of hesitation pauses within the phrase - before the idea is completed - and happen quite often when the speaker is making a structural or lexical choice. If pervasive, the delivery tends to be choppy and disjointed, and the meaning is obscured. Some speakers prefer to fill these pauses with a syllable, word or phrase holder as in the following example: "It's like - well - you know - um - round except at - er - the bottom." Goldman-Eisler (1968) and Levin, Silverman and Ford (1967) have shown that these intra-phrase pauses and filled pauses inversely mirror automaticity of cognitive processes. Other dysfluencies that intrude into speech flow are repetitions of words or phrases, or parts of words, and revisions or false starts, when a speaker changes his mind as in:

"I was going down - on the bus to get some - to go to the library." Individuals differ to some extent in the frequency with which these dysfluencies intrude into their language, and ordinarily we, as listeners, are not particularly aware of them as we concentrate more on the message than on the delivery. Indeed, most speakers are unaware of the outward and audible signs of their minds in action if they are in a relaxed, comfortable state, such as a one-to-one or small group situation where roles of speaker and listener are frequently changed, contact is close, and the participants are familiar with each other, particularly when the subject matter under discussion is not, by nature, intellectually taxing. The degree of disruption is affected by internal and external factors however. Internally, when the cognitive complexity of the speaking task is such that automatic well-learned patterns cannot suffice to express the speaker's intent and language must be newly-generated, such language is vulnerable to disruption. Much of Goldman-Eisler's research has studied this type of dysfluency and is discussed in the following chapter. She has shown that explanation or interpretation is far more productive of dysfluency than description because ideation is more involved, and also that the level of dysfluency, in both instances, decreases as the description or explanation is repeated and the language becomes more automatic. The so-called 'normal non-fluency stage' of language development which most young children reach between three and four years of age is another example of internal disruption. At this age, nearly all language is being newly-generated - patterns are untried and unfamiliar, and for a year or so, much backing and filling goes on in oral expression. As more experience is gained, and the child becomes more proficient, such dysfluency is markedly reduced. Anyone who has had to try to express

ideas in a second language which was not too familiar, will recognize a similar situation.

The generation of language and its production in the form of the spoken word, i.e. competence, is a function of the central nervous system and requires the co-ordination of myriads of nerve impulses to the speech mechanism and delicate timing which is easily disrupted by external factors affecting performance. Fatigue, drug effects, and emotion are examples of such factors. Highly emotional states, such as fear or anxiety, anger, hysteria or euphoria cause the automatic nervous system to react, and interfere with the smooth functioning of the central nervous system producing such physical symptoms as palpitations, increased respiratory rate, sweating, trembling, higher blood pressure levels, and faster pulse rate, whilst intruding into such oral speech dimensions as rate, vocal pitch and quality, fluency, as well as interfering with the formulation of language itself. Competence is not reflected in performance under such circumstances.

Stuttering

Perhaps the most dramatic example of external interference with normal speech functioning is provided by stutterers, who can be said to be at the extreme end of the dysfluency continuum. Wendell Johnson, Van Riper, and others, have under-scored the connection between the production and quantity of stuttered speech and the anxiety or fear engendered by the topic, audience or speaking situation. It is well known, for instance, that even severe stutterers will have very little difficulty when talking aloud to themselves or to dogs, cats, horses or babies, or when speaking in unison with others, whereas stuttering increases when the speaker feels the audience members are in a position of superiority or authority, e.g.

father, principal or employer; or when he is making a request such as asking permission to borrow the car, take time off, or confessing to a misdemenour; or when the audience's attention is focussed entirely on him, as, for instance, when answering the telephone, responding to a question in class, or asking for a theatre ticket in a line-up. While there is no single explanation of the aetiology of stuttering, a large body of opinion subscribes to the idea that it is learned behavior conditioned by inappropriate adult reaction to the child's early and critical speech attempts, which establishes a pattern of circularity in creating an apprehension towards the speech act because of previous negative feedback from his most important audience. That apprehension itself causes increased dysfluency, which gradually becomes established as part of the speaking process. The stutterer thus experiences an approach-avoidance conflict towards speech, wherein he wants to contribute, to interact, but fears to do so because he may stutter, and whichever choice he makes - to speak, or not to speak, - tends to exacerbate his frustration and anxiety.

For most speakers, the only comparable experience is that called stage fright, when anxiety levels become so acute that normal functioning ceases, and fear of the audience and the situation invades and terrorises the individual. However, given repeated exposure to such a situation, most speakers do not maintain that level of stress. They adjust to the new demands made upon them, and learn to operate effectively at this different register.

Verbal Coherence and School Experience

Children are given little formal training in their school programme to develop speaking skills or verbal coherence, even though much emphasis is placed on written coherence in the language arts curriculum. Whereas

ways are found to develop vocabulary, to combine words and phrases in an acceptable and expressive manner, to foster an appreciation of literary style through the reading of prose and poetry, little time and effort is devoted to comparable effectiveness in oral communication. Yet the written word, being in concrete form, does allow for revision and reflection, so that, on second thought, a redundancy can be eliminated, or a more precise word inserted, whilst the spoken word is ephemeral and spontaneous and thus a far more demanding medium in which to achieve elegance, style, and clarity.

As Barnes has written:

> Language indeed offers us both routines and options at every level from the phonological to the sociological. Children growing up need both to learn the routines so they can fit in, and to operate the options so that they can participate actively in shaping the lives they share with others.

Further on in the article he goes on to say:

> It is not only that in order to participate fully in adult life pupils will need to have experience of a wide range of speech roles. We cannot rigidly separate cognitive from social learning. If we constrict pupils' classroom roles, we constrict what they learn.
>
> To put it bluntly, too many children spend too much time vaguely listening and then regurgitating; throughout the curriculum, they should be required to use language for playing with stories and ideas, exploring things and people, and for organizing thought and feeling explicitly.

If then, to aid social development, personal development and the mediation of thinking, we were to present students with opportunities to adopt a new role, in a context that required a shift in language style from the easy informality of everyday conversation to a public form that is explicit, planned and non-elliptical, we should consider ways of

making the experience as rewarding and positive as possible, particularly in the initial stages. Certainly we do not want the child to enter the situation in a state of anxiety and stress, hesitant and confused, inaudible and incoherent, for then it would become an unpleasant, and doubtless unproductive exercise for him or her. Consideration must therefore be given to the choice of topic, which should be within the speaker's competence and area of interest; to adequate preparation time; opportunity for rehearsal, so that repetition defuses the strangeness and smooths the delivery; some instruction in techniques of speech and voice; and also to the choice of audience. All of these factors are important in the degree to which a child is comfortable in a speaking role, and therefore to his relative fluency or dysfluency.

The Audience

Just as stutterers find some listeners more anxiety-provoking than others, so in the formal speaker-to-audience situation, the composition of the audience may also be a positive or negative influence.

Audiences can vary in size. This factor tends to alter the physical separation between speaker and listeners, and the manner of presentation. Talking to a seminar group sitting around a table is vastly different from speaking at a convention on a platform via a public address system.

Audiences can vary in their degree of familiarity with the speaker - how well they know him, why they know him, and the degree of relative trust that exists on both sides. Sometimes prejudice, sometimes enthusiasm greets a speaker before he even starts to talk, solely on the basis of previously existing attitudes towards him.

Audiences can vary in their equality with the speaker. If the audience is composed of experts on the topic of the address, or those

whom the speaker regards as being powerful figures in his life, the status relationship is burdensome. If, on the other than, he is in the position of authority and the audience is not knowledgeable, or much younger, he is less likely to fear criticism, and can be more adventurous.

Audiences can also vary in terms of sex, whether all male, all female or heterosexual. This may affect the speaker of either sex, insofar as attitude to that audience and the language used, is concerned.

Purpose of the Study

The purpose of the present study was to examine childrens' oral language as they spoke to three audiences which differed in some of the aspects just described, in order to investigate whether composition of the audience was related to disruption in speech flow, and a concommitant decrease in speaker effectiveness. In addition to dysfluency variability, changes in rate of utterance, and the length of time an individual was prepared to speak to each audience, were considered. The effects of previous exposure to audience situations, implications of the significance of intelligence, socio-economic group membership, and three personality traits on the results were also studied.

Design of the Study

Twenty-four Grade Six students were drawn by stratified random selection from three Edmonton Public Schools in different socio-economic districts of the city. Two of the schools had two Grade Six rooms, and children from these schools had had little previous exposure to the speaker/audience situation. The other school had four Grade Six rooms and children who were used to making oral presentations. Each room provided three students for the study. There were twelve boys and twelve girls.

Collection of the Data

Following some preliminary preparation, each subject addressed three audiences. These audiences were:

Audience A. His own classmates - the familiar peer group.

Audience B. The other Grade Six class - less familiar peers.

Audience C. An adult group - non-peer, less familiar.

Each speaker was given a pre-determined rotation order so that this would not be an uncontrolled effect. The presentations were recorded on tape, and subsequently transcribed and analysed.

From the cumulative records of each subject, the most recent I.Q. score from the Lorge-Thorndike test was obtained.

Each subject's home-room teacher gave his or her perceptions concerning three personality traits of the children involved in the study, and indicated how much previous experience class members had had in formal speaking situations.

Analysis of the Data

The tapes were timed, and measures of length and rate of utterance were made. The number and types of dysfluency were identified in each presentation. A statistical analysis yielded means, standard deviations and correlation coefficients for nineteen variables. The variables of time, rate and dysfluency ratio, were correlated with sex, school, I.Q., teacher rating of personality traits, degree of previous speaking experience, and audience. A probability rating of .10 was accepted as indicative of a significant relationship.

The Significance of the Study

It does not seem to matter where a person finally decides to channel his or her interests, be it as a salesman, lawyer, priest, secretary or

housewife. Sooner or later, because of the vocation or avocation, the necessity to speak to an audience will arrive. The housewife may become the chairman ofthe P.T.A.; the secretary may be elected to the local union executive; the salesman may have to give seminars; the lawyer to plead his case in court. The growth in popularity of such organizations as the Dale Carnegie course, or the Toastmasters-mistresses bear witness to the fact that most people in every walk of life feel inadequate when they are confronted with any but the most informal speaking situation. This is not at all surprising in light of the fact that this is not, like reading, writing and arithmetic, regarded as part of one's basic education, and yet surely it is a dimension of personal and social development that the language arts curriculum aspires to promote.

It was hoped that the findings would indicate a direction in which a programme aimed at encouraging children to develop competence and flexibility in speaking at other than an informal register might proceed. Additionally, that anxiety affects performance which adversely reflects on competence, and testing situations should take into account the variable of audience.

Definition of Terms

Oral Language - the spontaneous spoken utterances produced extemporaneously by the subjects to their audiences in monologue.

Dysfluency - any break or interruption in oral language flow. Categories of dysfluency examined individually and in composite, were slightly adapted from Johnson (1963). Those identified were:

(a) Interjections of syllables, words, phrases - often referred to as the filled pause, e.g. um, er, like, well, you know.

(b) Repetitions of syllables, words or phrases that were non-significant semantically.

(c) False Starts - an incomplete or self-interrupted utterance where the content of a phrase is altered, or the structure is modified, or the pronunciation is changed.

(d) Non-Vocal Hesitations - sometimes called unfilled pauses, occurring between or within word group boundaries. Those occurring between word groups are regarded as punctuation pauses, whereas those occurring within phrases are included in the dysfluency category.

Dysfluency Ratio - the proportion of total number of dysfluencies to total utterance, i.e. number of words spoken.

Limitations of the Study

1. Since the number of subjects was necessarily small, strong inferences supported by powerful statistical analyses could not be drawn.
2. Problems were encountered with one of the tapes which did not record, thus causing missing data.

Outline of the Research

Chapter I has given a general introduction to the research problem and the methodology of the study. Chapter II consists of a review of relevant literature, followed by research design in Chapter III, and a survey of the findings in Chapter IV. Chapter V contains the summary, conclusions and implications for further research.

CHAPTER II

A REVIEW OF THE LITERATURE

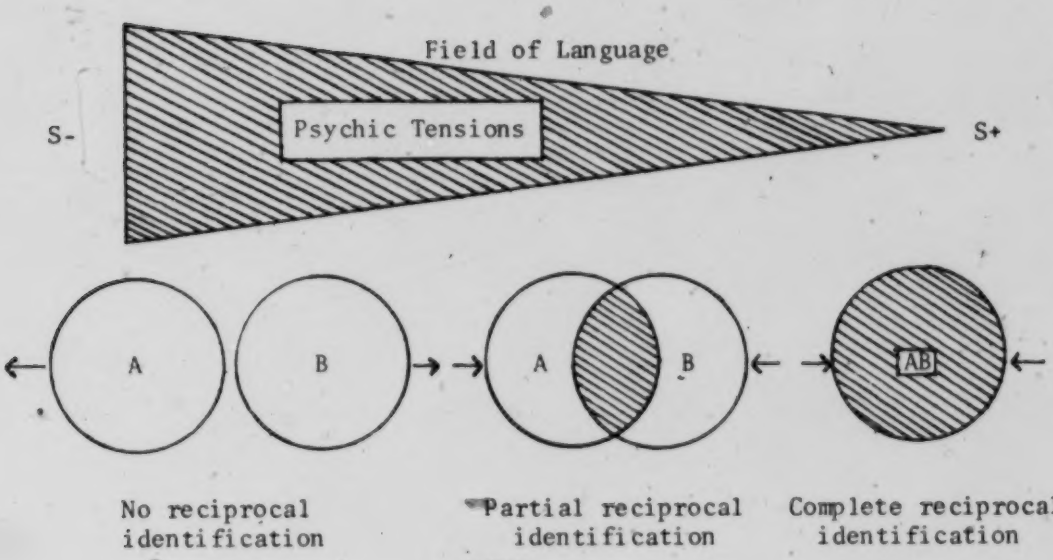
This chapter contains a survey of the literature which is relevant to the study of dysfluency as it occurs in oral language. The subject has been of interest to researchers from a number of disciplines, including linguists, psychologists, educators, sociologists and speech pathologists. Consequently, a wide variety of approaches to the phenomenom exists which are described.

The major concern of the present study is to investigate the degree to which different audiences cause alterations in childrens' speech patterns, particularly those of dysfluency, and length and rate of utterance. Competence in any task can only be judged through performance, as Wilkinson has written. Competence in language is based upon the acquisition of concepts which provide for vocabulary growth and a flexible use of grammatical form. Intellectual ability of the individual and the broad cultural values of the particular society or sub-group to which he belongs will affect the degree of competence obtained. All the language modalities - listening, speaking, reading and writing - reinforce each other and overlap to provide a multi-layered medium in which communicative skills grow. But the performance need not necessarily reflect the competence because the context or situation is an additional factor acting upon the product. Actors, musicians or athletes may do far better in practice sessions than in a crucial performance; a conscientious student may produce an inferior examination paper. Anxiety, fatigue, stress level are examples of noxious influences upon optimal performance.

Communication is a dyadic process in which the interaction between human beings require the message sender to weigh and calculate the effect of his words on his listener, and the feedback he receives conditions and alters subsequent messages, and the manner in which they are produced. That feedback may be verbal or non-verbal, positive or negative. It is most direct and explicit when the participants are familiar and the interaction is at close quarters, as in dialogue. When, however, the social distance between speaker and listener is increased, either by virtue of the unfamiliarity or inequality of the participants, when the size of the audience increases, or when the interaction decreases as in a monologue situation, it is more difficult for the speaker to gauge the effect his utterance is producing. The Baker model of communication theory states that general effectiveness of communication is very closely related to the degree of commonality between speaker and hearer. He represents these degrees of commonality, or "reciprocal identification" with the two circles labelled A and B in the following diagram. Additionally, he examines communication from the perspective of silence. He states that these are two basic forms of interpersonal silence. The first, represented as S- in the model, he calls negative silence and characterises a communication situation in which words or speech "break down." Such situations are characterised by those in which fear, hatred, anger, acute anxieties, or the absence of any basis for reciprocal identification between speaker and hearer make speech difficult. The S+ notation represents those communication situations in which tension is low, reciprocal identification very high. The cross-hatched triangle represents the relationship between psychic tensions and degree of reciprocal identification. High levels of disequilibrium or discomfort, low reciprocal

FIGURE 2.1

BAKER COMMUNICATION MODEL



Source: Speech Communication, Concepts & Behavior, Dance F. & Larson C. (p. 24).

identification and negative silence become diminished as we move toward the S+ end of the triangle; such silence is a "comfortable" silence based on understanding.

The negative silence can be total or exhibited as faltering, dysjointed speech, the performance reflecting the insecurity of the speaker in the areas of rate, volume, pitch, tone quality and fluency.

A certain degree of dysfluency is normal and goes unrecognised by both speaker and listener, but normally, fluency far exceeds dysfluency overall. Davis, in her 1940 investigation reported that the speech of normal young children will display approximately forty-nine instances of repetition for each 1,000 words spoken in free play.

Dysfluency as a Product of Anxiety

Studies have been carried out which indicate that fluency failure is associated with and increases under conditions of negative emotion. Stassi (1961) presented experimental data from a study using twelve male and twelve female college students who were required to read a collection of nonsense words which, in fact, had no "correct" pronunciation. A varying schedule of positive or negative feedback was administered by testers as they made their attempts at pronunciation and it was found that "punishing stimuli have a disruptive effect upon fluency in direct proportion to the degree of negative feedback, males particularly being more susceptible" (p. 360). This led Stassi to hypothesise that "the female is less susceptible to disorganization of verbal behavior than the male" (p. 360). The Davis data also made it evident that boys were more likely than girls to be dysfluent, and she also noted that the repetition she observed appeared to be functionally related to such activities as attention getting, coercion, status seeking, criticising,

seeking a privilege and obtaining social acceptance. Shames and Sherrick (1963) have pointed out that these circumstances tend to involve what Skinner has called manding, i.e. that form of verbal behaviour whose mood is imperative or interrogative and whose occasioning circumstance is "an aversive stimulus or a state of deprivation in the speaker."

Bluemel (1957) has said that non-fluency results either when developing speech has not yet gained sufficient organization or when stresses act upon the speaker to disrupt thought flow, language patterns and the physical skills which allow the speech act to flow smoothly and in integrated sequence. Stevenson writes:

> Unusual speed of speech, hesitations, blockings, amnesias and confusions all deserve attention as signs of emotion.

This is elaborated upon by Murphy and FitzSimmons (1960) who state that dysfluency arises from anxiety created by impaired interpersonal relationships. Anxiety need not be associated with speech per se but can be related to any developing skill or to self-image such as appearance, muscular strength, language skills. Pronounced apprehension about any felt inadequacy leads to hesitant behavior reflected in speech as dysfluency.

In a study done by Ragsdale (1976), there was an investigation of relationships between three classes of hesitation phenomena-ah, non-ah (false starts, repetitions) and silent pause - and anxiety, measured by the Welsh Anxiety Index and self-control measured by Welsh's Internalisation Ratio. The subjects were fifteen male and fifteen female undergraduate students engaged in small group discussion. He found that there was a positive correlation with anxiety and loss of self-control and non-ah hesitations. These findings agree with those of Mahl (1956) who reported,

in a paper delivered to the American Psychological Association, that non-ah hesitations correlate positively with degree of anxiety as judged by trained observers. The subjects in this instance, were patients undergoing psychological counselling. He defined eight disturbance categories: ah, er, sentence correction, sentence incompletion, repetition of words, stuttering, i.e. repetition of sounds or syllables; intruding incoherent sound, tongue slip, omission of words or parts of words. Freud certainly regarded speech slips, transpositions of sounds or words, hesitations, or extended silences as evidence of anxiety-provoking content.

The studies reviewed are but a sample of those which contend that dysfluencies are the result of conditions that interfere with normal organismic functioning. These may be in the form of negative feedback from the listener, the type of speaking task, the topic being discussed, or the situation in which the speaking takes place but the outcome will be impaired performance which belies true competence.

Speech Ability and Speech Fright

Shaw, in his 1966 dissertation dealing with speech fright amongst elementary school children, quotes Garret (1955), Low and Sheets (1951), who have variously confirmed that training and experience decrease stage fright, which is inversely proportionate to amount of speaking to group audience done by the subject. These authors use measures of observed behavioral discomfort - loss of eye contact, stance, volume, etc.-and self-reports from the subjects.

Shaw's study, carried out in Detroit using sixty children from each grade, from kindergarten to Grade Six, in three schools representing a mixture of ethnic, religious and socio-economic backgrounds, attempted to explore relationships between speech ability, which he defined as

"organization of thought, language, voice and action"; speech attitude - "the negative or positive attitude of speaker to audience"; and speech fright - "anxiety due to public speaking situation measured by observation and introspective tests". A total of 1,666 children and twenty-eight teachers participated in the study by filling in various measurement forms, but only twenty-four were actually observed in the speaking situation - two from Grade Kindergarten, Two, Four, Six in each school - for the in-depth study.

His measures were:

1. Introspective measure of speech fright - all children indicated the extent of anxiety at the prospect of speaking before group audience by either colouring one of four faces ranging in expression from happy to sad (Grades Kindergarten through Grade Four); or moving a car along a race track demonstrating degree of apprehension according to placement (Grade Five and Six).
2. A questionnaire - twenty-two questions to explore child's feeling with regard to stage fright adapted from Gilkenson (1940).
3. Teacher rating form - each child was described on a 1 - 5 scale as being anxious or non-anxious in speaking situations in the classroom by his or her teacher, and of low or high speaking ability.
4. Teacher questionnaire - the teachers' attitude to speech skills and their relative importance was examined.

The twenty-four students who participated in the in-depth study were in addition interviewed by observers to explore their attitudes before the speaking task, and were then rated on a 1 - 5 scale for speech ability and speech fright as they spoke. The task they were given was to mould a lump of clay into something, and explain to the class what they were doing with the clay.

Observers took note of the language used, a propos of complete or fragmented sentences, word choice, organization of thought, level of abstraction, organization of activity and demonstrable indication of discomfort in the speaking situation.

Judgment was made during each presentation by two observers.

The results were:

1. Observers found similar distribution across grades, of high, low and average degrees of speech fright amongst children observed - Grade Four children seemed least anxious.
2. Direct and indirect questioning revealed most anxiety in Grade Six children on the introspective measure, the Gilkenson questionnaire, and the individual interviews.
3. As for the relationship between speaking ability and speech fright - no significant correlations were obtained.
4. The children from the two low socio-economic area schools demonstrated more speech anxiety than those from the high socio-economic area school.
5. There were no observable sex differences.
6. Considerable difference of opinion was evidenced between teacher judgment of students' speech ability and speech fright levels, and those made by observers.

This study was the only one to be found which dealt with an audience confrontation by elementary school students and the observed effect on their performance. It lends itself to criticism in both the design of the study and the measuring instruments. One weakness is the small number of students engaged in the actual speaking task (twenty-four) while the bulk of the results and conclusions from the remaining 1,142 students

were drawn from rather simplistic questionnaire devices. Those who did speak were rated on the spot by observers whose criteria seemed subjective and malleable.

It is of interest to note the apparent decrease of anxiety at the Grade Four level and the higher levels expressed by the Grade Six students. This may reflect the period of pre-pubescent stability of ten to eleven-year-olds on the one hand, and increased vulnerability and self-awareness of the twelve to thirteen-year-olds on the other.

Normal Dysfluency Versus Stuttering

Certain types of dysfluency are judged to be less acceptable than others, however. Perkins (1971) says:

> Society is much more severe in its judgment of the speaker who struggles to speak a word than one who struggles to find it. What the former does is considered stuttering, the latter normal (p. 91).

Differentiation is made when there are repetitions of single sounds or syllables as opposed to words or phrases; when there are audible or silent prolongations of sounds; when there is struggle behavior attendant on the speech attempt, and when such speech patterns have become a conditioned response on the speaker's part. Johnson (1959) compared two groups of eighty-nine children ranging in age from 2 1/2 years to 8 1/2 years. One group was regarded by parents as being normal speakers; the other as being stutterers, and yet as shown in the following table, non-stutterers repeated phrases, used interjections, revised sentences, used incomplete phrases more frequently than non-stutterers. In fact 20-30% of children who were regarded by their parents as having normal speech had more dysfluency than those regarded by their parents as being stutterers.

TABLE 2.1

TABLE 53. AVERAGE PERCENTAGE OF THE DISFLUENCIES CLASSIFIED IN EACH CATEGORY FOR CLINICAL (STUTTERING) AND CONTROL GROUP BOYS AND GIRLS

Nonfluency Category	Experimental Group[ab]		Control Group[ab]	
	Male	Female	Male	Female
Interjections	20.2	27.3	43.0	43.7
Sound and syllable repetitions	30.4	24.2	8.4	10.5
Word repetitions	23.9	22.5	14.7	14.4
Phrase repetitions	6.4	5.7	8.4	7.3
Revisions	7.3	8.0	19.6	17.5
Incomplete Phrases	1.9	1.5	3.2	3.5
Broken Words	0.7	3.9	1.4	1.3
Prolonged sounds	9.3	7.6	1.9	1.8

[a] N = 89

[b] Ranging in age from about 2.5 to 8.5 years, with an average of approximately 5 years.

Source: Johnson et al., p. 211.
The onset of Stuttering: Research Findings and Implications, 1959, p. 211.

Much attention has been given to identifying factors which exacerbate the stutterer's dysfluency. Generally, these are found to concern:

1. The number of listeners at the time - one, two, a small group or a large group.
2. The characteristics of the listeners vis-a-vis the speaker - known or unknown; same sex or opposite sex; older or younger.
3. The listener response - whether the listener(s) react to the dysfluency overtly with laughter, embarrassment, withdrawal.
4. The nature of the speaking task - description, explanation, asking questions, responding to questions, giving directions, telling jokes.
5. The nature of the speaking situation - whether the speaker has a subserviant or dominant role, how exposed or private the circumstance is.
6. Specific speaking situations - answering the phone, giving name and address, making introductions.
7. Pressure or tension in the situation - interruptions, need to give rapid responses.

Every stutterer has a pattern of fears in some or all of these areas. Those which cause the least anxiety will generate the most fluency and vice versa. This variability is the most fascinating, but at the same time the most difficult aspect to deal with in the management of the disorder.

Adaptation Effect

A further aspect of stuttering behavior that is of interest because it relates to Goldman-Eisler's research is what is known as the adaptation effect first reported by Johnson in 1937. It refers to the fact that

there is a tendency for stuttering to decrease on successive oral readings of the same passage. This was deemed to be due to a concomitant decrease in anxiety and the extinction of the stuttering response as a result. More recent studies conducted by Brutten and Shoemaker (1967) contend that the degree of adaptation depends upon the magnitude of dysfluency in the initial trial. In a series of investigations utilizing the Palmar Sweat Index as an independent measure of negative emotion, stutterers and non-stutterers were asked to read a passage seven times and percentage of dysfluency and degree of palmar sweating were measured. Stutterers demonstrated higher frequency of fluency failure and significantly more negative emotion initially than non-stutterers, with a greater degree of adaptation - a decremental slope of twenty-two degrees against only nine degrees for the non-stutterers. These findings were further supported in another study using three groups of stutterers, severe, moderate and mild. The severe stutterers showed an adaptational decline of fifty-seven degrees; the moderate stutterers one of twenty-eight degrees, and the mild, ten degrees. Maxwell (1965) pursued this further by having a group of stutterers read to two different audiences - single examiner and a group, monitoring the Palmar Sweating also. Speech was markedly more dysfluent in the group audience situation and higher palmar sweat readings were recorded. Repeated trials showed faster adaptation in the group audience situation - forty-five degrees as compared with twenty-nine degrees in the single examiner situation. Emotionality measured by the palmar sweat index, tends to decrease substantially after the first trial, but thereafter does not show a proportionate decrease to fluency level. The authors summarize by saying:

> The data support the contention that adaptation is a function of inhibition (i.e. a reduction in response strength that occurs with repeated performance) and that a reduction of negative emotion is not a primary necessity for adaptation to occur. The level of negative emotion does however seem to be a vital factor in setting the initial level of performance. In this respect it is important to note that the greater the initial response strength, the greater the degree of adaptation (p. 76).

If these findings hold true in the present study one would expect to see:

(a) The greater the degree of dysfluency on the first speaking attempt, the more it will improve on repeated trials.

(b) That type of audience affects the degree of dysfluency exhibited and anxiety generated.

Thus far, anxiety as it affects speech performance among normal speakers and stutterers has been discussed. The methods of collecting information have been:

1. By self-report.
2. By observer report, based on changes in fluency level or non-verbal behavior.
3. By recording physiological changes, such as the palmar sweat index. Other studies have measured change in respiratory rate, pulse rate, or blood pressure levels.

Usually there does not seem to be much inter-correlation between the different types of measurement. Authors agree that anxiety leads to hesitant behavior, and that a lessening of self-confidence stemming from the audience, topic or nature of the situation causes a speaker to become cautious and unspontaneous. Some authors have differentiated

among types of dysfluency, claiming that non-ah (false starts, repetition and non-vocal pauses) denote a positive correlation with degree of anxiety. Repeated exposure to the situation and/or instruction in techniques of presentation produces a reduction in amount of dysfluency observed.

Other research has looked at dysfluency as an indicator of verbal planning, cognitive complexity or as a measure of language maturity. In such studies, competence rather than performance is the issue.

Dysfluency and Cognitive Complexity

When speech is being generated, the speaker is making a series of choices, both bound and free. Bound choices include grammatical rules which must be followed for the sake of intelligibility and which, as Miller (1951) points out, take a central position in the process of speech production. They lead to a wide range of possible choices of words, phrases and meaning; some common, some less common, some unique. As the linguistic units chosen become less common, more time is required, relatively speaking, for their production.

As far back as 1898, Hughlings Jackson, the great English neurologist described distinctive features of what he called "superior" and "inferior" speech, the distinction being determined by the generating processes involved. His superior speech is an act of propositionising, newly-organized, and fitted to the intended meaning. Inferior speech is "old" in the sense of being well-organized, familiar, consisting of learned sequences and ready made phrases, whose production is an automatic act. The nervous system arrangements for such speech he assumed to be well-organized, and associated with the right cerebral hemisphere. At the same time Jackson maintains that normally the two processes function in

duplicate - that physically the unit of function of the nervous system is double the unit of composition, not that one half of the brain is automatic, and the other half, voluntary. The more automatic the process is, or becomes, through repetition, the more equally and fully it is represented doubly in each half of the brain. Any sequence of words could, according to this system, become inferior, i.e. automatic, once it was well learned and vice versa, the same utterance which has become automatic by being oft-used would become once more voluntary speech if it were being used in a new context. Normal speech is a blend of both types - propositional speech being interlaced with ready made phrases, conditioning, alternating with spontaneous creation.

Goldman-Eisler's research (1958) has been concerned with the isolation of both types of speaking during spontaneous speech through the study of pausing. She writes :

> One would expect pausing to be the behavior concomitant of the productive processes in the brain concerned with verbal planning and selection, whereas continuous and rapid vocalization would be the result of practice and would occur when the gaps have been closed in the use of well-learned sequences.

She examined pauses which occurred during various speaking tasks dividing them into grammatical juncture pauses which facilitate meaning and have reference to the semantic groupings; and non-grammatical breaks which occur in the middle of a phrase or verbal compound, when a gap occurs, when words or phrases are repeated, or as the result of a false start. This latter group of pauses impede the decoding of messages.

When placement of pauses according to these categories was examined comparing spontaneous speech with the reading of a prepared text, spontaneous speech had only 55% pauses at grammatical junctures, and 45%

at non-grammatical points, whereas reading was almost wholly at grammatical junctures.

In a subsequent study, hesitation pauses under different conditions of spontanaiety were measured. The two tasks were:

(a) To describe serial cartoons taken from the "New Yorker" for content.

(b) To formulate the general point, moral or meaning of the cartoon as concisely as possible.

The nine subjects were asked to repeat both description and explanation six times. The experiment thus produced newly-formulated speech, repeated often enough to become automatic at two different levels of verbal behavior - concrete description and abstract interpretation. The results showed that pausing time when speakers interpreted meaning was about twice as much as when they described content. Pausing also varied with the different degrees of spontanaiety. There was a sudden decline after the first trial and a gradual decrease in subsequent repetitions. (Fig. 2.2) (c.f. adaptation effect mentioned earlier).

Further work by the same researcher determined that grammatically complex sentences in themselves were not the begetters of hesitation pauses "which indicates that the hierarchical structuring of sentences is more a matter of linguistic skill than of planning. Syntactical operations had all the appearance of proficient behavior as distinct from the volitional aspect of semantic and lexical operations."

If, therefore, hesitation pauses are indicative of verbal plannings, and "superior" language functioning, it is interesting to apply this to Bernstein's description of users of the 'restricted code' of language which he ties into low socio-economic level. Such language is characterised, he says, by:

FIG. 2.2

HESITANCY AT TWO LEVELS OF VERBAL PLANNING AND
ITS DECREASE WITH REPETITION

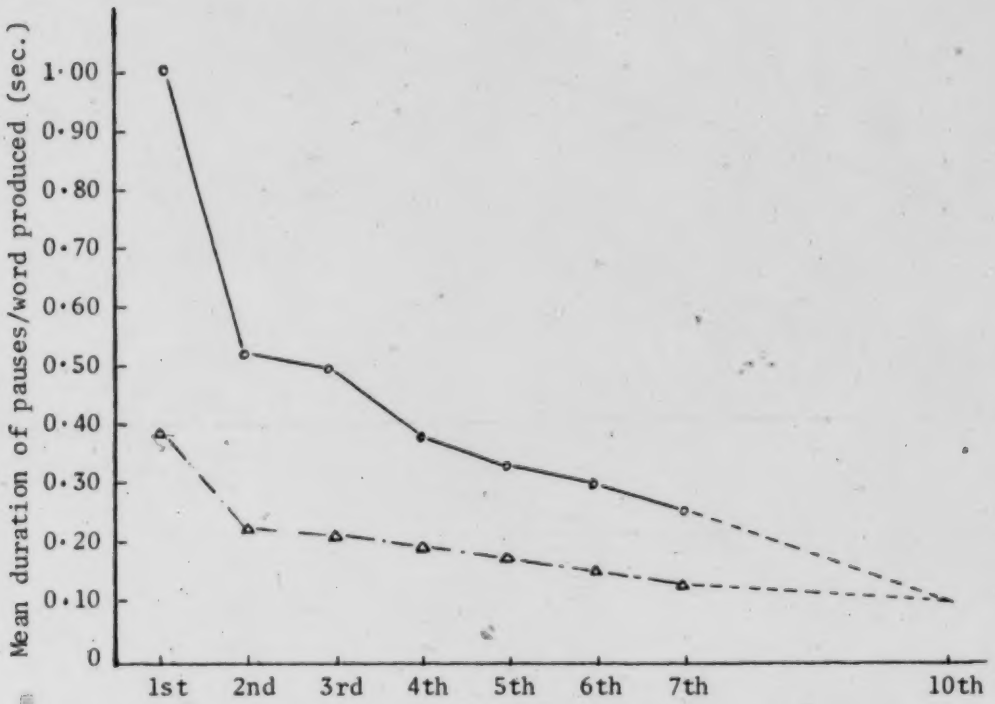


Fig. 6 Hesitancy at two levels of verbal planning and its decrease with repetitions.

△ = Descriptions, o = interpretation.

Excerpt from Goldman-Eisler, 1957, p. 27.

- simple, often incomplete sentences,
- rigid range of conjunctions, adjectives, pronouns,
- frequent use of catch-phrases,
- shortened verbal planning leading to sustained speech sequences,
- high degree of redundancy,
- frequent use of categoric statements,
- predictable pattern of language use because a limited range is available to the speaker.

Users of the 'elaborated code' on the other hand

- have an extensive range of alternatives, and are unpredictable in their language use,
- show longer delays between statement or question and response while selection of response is made,
- demonstrate facility in elaboration and the transmission of particular experience,
- exhibit speech modified to fit listener requirements.

Access to the elaborated code depends on position within the social structure rather than intelligence, and a user is able to shift to either code depending upon the social factors. Users of the restricted code however cannot shift upwards, and this depresses potential linguistic growth, inhibits generalizing ability, and reinforces the feeling of solidarity within that group.

Intrigued by the Goldman-Eisler studies, Bernstein conducted an experiment in which sixty-one young male subjects from fifteen to eighteen years of age who had had no grammar school education were matched for age with forty-five pupils from six major British public schools. The two groups he called working class and middle class respectively. All were

given the Raven Progressive Matrices (1938), a non-verbal test of intelligence, and the Senior Mill Hill Vocabulary Test, Form 1. From this body he selected five sub-groups which permitted the following comparisons:

1. General inter-class comparison
2. Class comparison with non-verbal intelligence held constant
3. Class comparison with verbal and non-verbal intelligence held constant
4. Comparisons between different I.Q. profiles, class held constant

The following table shows the intelligence scores and standard deviations for each group. (Table 2.2)

Group discussion on the topic of the abolition of capital punishment was recorded, and the speech sample examined was the next 1800 words which followed the first five minutes of discussion. Individual utterances were divided into those of forty syllables or more, and those between ten and forty syllables. Only the longer utterances were considered in this study. Measurements were made of the number of words, the number of syllables, rate, mean number of words per pause, mean duration of pause per word per utterance, and mean word length in number of syllables. The next table sets out the summary of results (Table 2.3). Briefly, they show that:

1. There is no significant difference between the articulation rates, except a borderline difference in the two middle class groups. This is in line with Goldman-Eisler's findings for this measure. She finds that rate is a constant of great rigidity inasmuch as it does

TABLE 2.2

INTELLIGENCE TEST SCORES FOR WORKING CLASS AND MIDDLE CLASS SUBJECTS

Group	N.	Verbal	S.D.	Non-Verbal	S.D.	Age
Middle Class		I.Q.		I.Q.		
1	5	125.0	1.81	123.8	2.75	16.2
2	5	108.0	2.72	123.0	2.24	16.0
Working Class						
3	5	105.0	2.14	126.0	0.00	15.6
4	4	97.5	2.60	123.0	3.08	16.5
5	5	100.0	4.60	100.6	3.20	16.2

Bernstein: Linguistic Codes, Hesitation Phenomena and Intelligence, p. 37.

TABLE 2.3

RESULTS OF SPEECH SAMPLE ANALYSIS OF MIDDLE CLASS (GROUPS 1 AND 2) AND WORKING CLASS (GROUPS 3, 4, 5) SUBJECTS COMPARING RATE, PHRASE LENGTH PAUSING AND WORD LENGTH

TABLE 3

Group	Articulation Rate					Phrase Length				
	Mean	S.D.	Mean	S.D.	%	Mean	S.D.	Mean	S.D.	%
1+2v.3+4	6.2	0.80	6.3	0.60	0.27 n.s.	6.3	2.00	8.9	1.92	2.69 p 0.01
1+2v.3+4+5	6.2	0.80	6.2	0.58	0.00 n.s.	6.3	2.00	9.3	2.07	3.29 p 0.005
3+4v.5	6.3	0.60	5.8	0.23	1.47 n.s.	8.9	1.92	10.0	2.28	0.87 n.s.
3v.4	6.2	0.32	6.7	0.78	1.11 n.s.	8.9	1.91	8.9	1.69	0.00 n.s.
1v.2	6.6	0.61	5.8	0.63	1.82 n.s.	7.6	2.14	5.1	0.49	2.33 p 0.025
2v.3	5.8	0.63	6.2	0.32	1.14 n.s.	5.1	0.49	8.9	1.91	3.87 p 0.005

Group	Pause Duration per Word					Word Length				
	Mean	S.D.	Mean	S.D.	%	Mean	S.D.	Mean	S.D.	%
1+2v.3+4	0.12	0.05	0.08	0.02	1.90 p 0.05	1.30	0.06	1.21	0.06	2.90 p 0.01
1+2v.3+4+5	0.12	0.05	0.07	0.03	2.94 p 0.005	1.30	0.06	1.23	0.07	2.33 p 0.025
3+4v.5	0.08	0.02	0.05	0.01	2.50 p 0.025	1.21	0.06	1.25	0.05	0.85 n.s.
3v.4	0.08	0.02	0.07	0.02	0.02 n.s.	1.20	0.06	1.23	0.05	0.61 n.s.
1v.2	0.11	0.06	0.14	0.04	0.83 n.s.	1.34	0.05	1.26	0.05	2.28 p 0.05
2v.3	0.14	0.04	0.08	0.02	2.74 p 0.025	1.26	0.05	1.20	0.06	1.50 n.s.

Source: Bernstein, B. Linguistic Codes, Hesitation Phenomena and Intelligence, 1962, p. 40.

not respond to changes in verbal planning as do pauses, but only to the effects of practice.

2. Differences in mean phrase length, mean pause duration per word and mean pause length were found for the class groups matched for non-verbal intelligence. The working class group uses a longer phrase length, a shorter mean pause duration, and shorter word length. The same pattern of differences was found in the overall comparison between the two class groups. The only difference between the working class groups, two of whom had an advantage of over 20 non-verbal I.Q. points was in mean pause duration. The sub-group with the lower profile spends less time pausing.

Within the two middle class sub-groups, there were differences in mean phrase length and mean word length in favour of the group with the higher verbal intelligence.

When the I.Q. profile was held constant and middle and working class groups were compared, differences at a high level of confidence were found for mean phrase length and mean pause duration. No differences were found for word length. The working class group used a considerably longer phrase length and spent much less time pausing than the middle class group.

Bernstein postulates that frequency of pauses, or phrase length, refers to the number of intervals during which alternative possibilities are available, and pause duration refers to the relative difficulty of selecting the next sequence. Word length gives a crude measure of the informational value of the message. Thus he argues that the longer the phrase, the more well-organized the sequence - i.e. automatic - and the shorter the pause, the more limited the selections available to the speaker. Therefore irrespective of intelligence, the groups with

middle-class backgrounds use different planning strategies, resulting in a higher level of organization, lexicon selection and information.

Both Bernstein and Goldman-Eisler have considered only one form of dysfluency, the hesitation or non-verbal pause, and their work would indicate that this particular form of dysfluency alters according to the range of options open to an individual speaker either because of linguistic enrichment, or the complexity of the speaking task. In the latter case, such pauses decrease as the experience is repeated and the language is stabilized.

Maclay and Osgood (1959) have also written substantially concerning hesitation phenomena in spontaneous speech. They describe four main categories:

(a) repeats - all repetitions of any length that are non-significant semantically,

(b) false starts - incomplete or self-interrupted utterances,

(c) filled pauses - interjections of sounds, syllables or words,

(d) unfilled pauses - silence of unusual length or non-phonemic lengthening of phonemes.

The analysis of their corpus for distribution of these four hesitation types showed that:

1. False starts involved lexical items - blocking occurred after a lexical choice, and a correction was made.

2. Repeats involved function words and tended to occur before lexical items, seeming to provide time for selection of an exact word. Repetitions were most frequently of the whole word.

3. Filled pauses and unfilled pauses occur most frequently before lexical items rather than function words, and within phrases as often

as at phrase boundaries but they are not free variants as filled pauses occur relatively more frequently before function words and at phrase boundaries, while unfilled pauses fall more often before lexical items and within phrases. They found a negative relationship to exist between rate and hesitation phenomena, and that speakers generally tended to have a preference for one type of hesitation.

These findings in general reinforce the idea that semantic choice is the greatest determiner of dysfluency, whatever the type, though they do not link cognitive activity to the unfilled pause and emotional attitude to the filled pause as Goldman-Eisler has done.

These studies quoted concern themselves with the linguistic distribution of hesitations in spontaneous speech on non-emotional topics in non-anxiety provoking settings, so presumably are to be regarded as representing normal dysfluency occurrence.

Dysfluency as a Measure of Language Maturity

Yet another body of research has addressed itself to considering whether dysfluencies in oral language reflect the degree of language maturity attained by the speaker, taking the stance that although dysfluency is a normal feature of oral language, it has a negative effect upon clarity of expression and is therefore undesirable.

In her thesis, Anderson (1972) has extensively reviewed the studies which have been carried out in the area of dysfluency, most often called mazes, and measures of language maturity. She cites studies by Strickland (1962), Shubkagle (1960), Degraff (1961), Francis (1962), Loban (1963), Khater (1951), Harrell (1957), Riling (1965), Hunt (1965), O'Donnell et al (1967), and Levin et al (1967). The figures which follow (Anderson, 1972, Fig. 1, p. 24-26) (Appendix C) show the elements regarded

as mazes and the variables with which they were correlated. Anderson's second figure (Fig. 2, p. 27-30) gives information on the subjects and the way in which the oral language sample was obtained. From these, it will be seen that mazes have been variously scrutinized in conjunction with sex, I.Q., grade level, language ability, class, race, personality adjustment, rural/urban environment in structured versus non-structured speaking situations, descriptive and explanatory tasks. Subjects came from Kindergarten up to Grade Twelve in the different studies, and responded to pictures or films through question stimuli, or provided free-speech samples in small group discussions. Anderson summarizes the findings of the studies in this manner:

> The diverse nature of the information given in Figures 1 and 2 cautions against any conclusive statements regarding the nature of the maze as an oral language feature. However suspected trends can be gleaned from the available information.
>
> 1) Studies which examined different types of mazes individually revealed that one type did not always relate to language variables in the same way as did other types (e.g. Degraff, 1961).
>
> 2) Distribution of the maze among subjects of the same grade is uncertain.
>
> 3) Findings related to the relationship between age and/or grade and maze usage are inconclusive. Harrell (1957) and Riling (1965) discovered a consistent decrease in use of the maze as age and grade increased. However the findings of Degraff (1961), Loban (1963), and O'Donnell et. al. (1967) showed a lack of consistency in this trend.
>
> 4) Findings cannot be generalized from one type of language to another. Degraff's two samples were elicited in structured and non-structured situations: Levin's situations required two different types of thinking. In both studies maze usage was not consistent between the two types.

> 5) Sex and the use of the maze do not appear to be related. Three of the four studies that included sex as a variable found no significant relationship with maze usage.
>
> 6) The relationship between maze and social class is not clear. Khater (1951) discovered no significant difference between social groups while Shubkagle reported that children in the lowest occupational groups used more mazes than children in the highest groups.
>
> 7) Loban (1963) and Degraff's (1961) data indicated that relationships between maze usage and other language variables may not be consistent across developmental levels.
>
> 8) A relationship between I.Q. and the use of the maze was reported in one study that equated the two (Shubkagle, 1960). As noted previously the finding was not conclusive (p. 23).

In her own study, Anderson collected samples of oral language that was both descriptive and explanatory in nature from twenty-nine Grade Four students. She used pictures and film strips to elicit the responses - the children were asked to tell the story that each picture brought to mind. Following this each subject was questioned further about the content of the filmstrip and asked to make a value judgment and to provide an explanation of his response from his own experience or reading. The language was divided into Communication Units following Loban's criteria (1963) and then mazes were identified - these being "unattached words or word fragments which are not semantically or grammatically part of a Communication Unit." The divisions examined, individually and in composite, were those identified by Strickland (1962).

(a) noise - the audible pause, e.g. uh, er.

(b) repeat - the repetition of words or parts of words.

(c) edit - word tangles resulting from a correction or change of direction.

The communication units were the measure of sentence complexity.

Qualitative and quantative measures of vocabulary also were obtained - the former by administering the first fifteen words of the Stanford-Binet vocabulary test, and scored according to the level of response given - error, descriptive, functional and conceptual; the latter by scores obtained by each subject on the Peabody Picture Vocabulary Test.

A significant correlation existed between sentence complexity and the use of the edit maze, but neither of the other two types (repeats and audible pauses). (Table 2.4)

Maze usage and age did not correlate significantly, nor did maze usage and I.Q. The vocabulary measures did not correlate with maze type or maze usage, despite Loban's hypothesis that it might. He stated that, "In respect to vocabulary, it seems logical that children with large and readily accessible vocabularies would find expression easier than those with limited vocabularies". However in the light of Goldman-Eisler's findings, the potentially greater semantic choices would give rise to more hesitations, though non-audible pauses were not included in the Anderson study, and were the measure used by Goldman-Eisler. Similarly, Anderson finds that sentence complexity begets more edit mazes, while Goldman-Eisler does not find that the level of complexity increases hesitation pauses. This may well be a reflection of the type of operation, i.e. planning - represented by the hesitation pause, whereas linguistic skill is the factor which gives rise to edit mazes, and if the skill is not well developed, the mazes are indicative of this. Goldman-Eisler's

TABLE 2.4

SENTENCE COMPLEXITY

Total Mazes	Audible Pause	Repeat	Edit
0.297	-0.095	0.141	0.589***

*** Significant at the .001 level

Excerpt from Anderson, E. The Maze and Selected Measures of Language Maturity, 1972, p. 62.

subjects were, after all, adults whereas Anderson's were ten-year old children. Interestingly, this is one of the questions the latter poses at the end of her research as being worthy of further investigation: "Would use of the edit maze change following a program which increased syntactic complexity?" If Goldman-Eisler's pronouncement that "syntactical operations had all the appearance of proficient behavior as distinct from the volitional aspect of semantic and lexical operations" (p. 80) is true, then the answers to that question would be positive.

One cannot leave a review of this aspect of dysfluency research without noting the large and important study carried out by Loban in 1963, from which much subsequent research stems. He compared maze usage on the basis of grade level and in subjects rated as being of high and low language ability in a longitudinal study which followed 338 kindergarten children through to Grade Six. The children came from varying socio-economic levels, and were equally representative of different sex, racial backgrounds and spread of intellectual ability. He found that over the seven-year period children increase the amount of language they use in the same controlled situation, and decrease the incidence of the word tangles or mazes, thus improving fluency. This was particularly noticeable in the high sub-group, who reduced the incidence of mazes by 35% in the first four years and also the size of their mazes. The low group whose language output is less, increases the size of their mazes even though they decrease the incidence by 18%. He says:

> It would appear that members of the low group experience more difficulty in using and controlling the patterns of English syntax and therefore involve themselves in more language tangles or mazes per volume of spoken language than do members of the high group. The mazes certainly reduce

> fluency whatever the cause for the mazes may be. The low group says less, has more difficulty in saying it, and has less vocabulary with which to express what it says (p. 42).

To illustrate this statement, the table following is extrapolated from his data and shows the percentage of words in mazes in relation to total words for all subjects and the two sub-groups, and the percentage of mazes occurring in relation to communication units (p. 33). As Loban's high sub-group and low sub-groups are related to socio-economic rank, his results concur with Bernstein's report that linguistic skill is related to cultural determiners, those in the least favoured socio-economic situations receiving the least experience.

There is a consistent trend towards decreased maze usage in all groups for the first four years. At Grade Four, there is an unexplained reversal of this trend although the number of words within the mazes remains relatively lowered. As the greatest increase occurs in the high sub-group proportionately, and this group would have greatest vocabulary growth also, it may be that the increased choice was the cause of the difficulties experienced at this level when the children moved into a new phase of attainment, and though Anderson's results do not support this idea, this may be because of the types of maze patterns she identified.

To sum up, dysfluency has been regarded as indicative of language competence by some writers, attributable to immaturity reflected as either of age level or linguistic achievement. One particular type of dysfluency - the edit maze, or false start, seems to relate to structural complexity. Hesitation on the other hand, seems to depend more upon the nature of the speaking task. The simpler tasks require less cognitive complexity and therefore language is relatively more fluent. Speakers

TABLE 2.5

MAZES AND LANGUAGE OUTPUT

	% of Words in Mazes in Relation to Total Words			% of Mazes Occurring in Relation to Communication Units		
Group	High Sub-group	Low Sub-group	Total Group	High Sub-group	Low Sub-group	Total Group
Kg	9.17	11.92	12.30	22.55	32.07	25.38
1	7.57	15.51	9.97	21.80	32.29	25.16
2	6.65	10.49	8.88	14.69	26.30	19.90
3	4.98	10.62	6.15	13.69	25.54	18.67
4	5.43	9.74	7.11	23.82	31.63	28.33
5	5.17	9.27	7.41	23.27	32.51	29.74
6	5.17	9.49	7.53	25.75	32.09	32.06

Excerpt from Loban, 1963, p. 33.

who have greatest competence may accordingly demonstrate more hesitation but fewer of the other types of dysfluency, e.g. false starts, repetitions; and vice versa. Notwithstanding, the ability of the speaker will be affected by his degree of anxiety at the time of performance. Such anxiety may be generated by the context, the situation, the topic, or the audience, and results in higher dysfluency levels. Some writers have indicated that 'non-ah' categories relate to anxiety level, but there is no firm agreement among the studies reviewed. Anxiety is recognized as producing increased disruption among stutterers, who represent an extreme form of dysfluent speech. Repeated experience will decrease the degree of anxiety-related dysfluency, and of hesitation related to cognitive complexity as the propositional speech becomes more automatic.

CHAPTER III

DESIGN OF THE STUDY

Introduction

The research reported in this study was designed to investigate the effect of three different audiences upon speakers' oral language performance. The situation required the subjects to adopt a more formal, relatively unpractised style of presentation. The extent to which the anxiety attendant upon the task was intensified or lessened by a particular audience was judged to be reflected by alterations in fluency, rate of utterance and length of presentation. The audiences varied in both degree of familiarity and the status relationship with the speakers. The effects of subjects' intelligence, socio-economic group membership, sex, personality and the extent of previous exposure to similar speaking situations were also considered in the investigation.

Research Questions

1. What is the relationship between degree of dysfluency and audience composition for:
   (a) the total group,
   (b) the sexes,
   (c) the different socio-economic groups,
   (d) groups with different degrees of previous speaking experience.
2. What is the relationship between degree of dysfluency and:
   (a) intelligence,
   (b) teacher ratings of three personality traits.

3. What is the relationship between length of presentation and audience composition for:

(a) the total group,

(b) the sexes,

(c) the different socio-economic groups,

(d) groups with different degrees of previous speaking experience.

4. What is the relationship between rate of utterance and audience composition for:

(a) the total group,

(b) the sexes,

(c) the different socio-economic groups,

(d) groups with different degrees of previous speaking experience.

Population and Sampling

This section will describe the backgrounds from which the subjects came, and the way in which they were selected.

Eight Grade Six classrooms in three Edmonton Public Schools provided the population for the study. These schools were situated in different areas of the city, and were selected because they were grossly representative of upper middle, middle, and lower middle class populations. The first was in an affluent district containing families whose income came from professional or executive managerial work. The houses were detached, substantial, and expensive. The school was new, attractive, and of the open-area design. The second school was similar in design, but larger, with a Kindergarten and a Ukranian language programme. It was situated in a fairly new subdivision, populated by trades-people, office and store

workers. There was no obvious poverty, but no luxury either. The third school was designated as an 'inner city' school. It was an elderly, two-storey brick building, situated in an industrial area. The children came from poor homes - many families were on welfare, many were dependent on a single parent. Two Grade Six classes from the first and third schools, and four Grade Six classes from the second, were involved in the study. Children in each class wrote their names on colour-coded slips of paper which denoted the sexes, and three were drawn randomly from each set: two boys and one girl from Grade Six A; two girls and one boy from Grade Six B. These were the speakers. The remainder of the class participated in the study as audience members.

Previously, the decision had been made to eliminate a child from the speaker sample when the following factors were determined to be present on the basis of the teachers' information and judgment: subjects with any speech defect such as stuttering or cluttering which would have influenced dysfluency, rate, or time measurements; any child who spoke English as a second language, whose dysfluency may have been caused by unfamiliarity with syntax and vocabulary; any child who was undergoing treatment for emotional disturbance, for whom the audience experience may have been traumatic. These criteria resulted in the elimination of two children from a possible total of one hundred and seventy-two. The final sample consisted of twenty-four children, twelve of each sex.

Instrumentation

The speaking task which these children were given, and the situational contexts for their presentations will next be described.

The Task

Various constraints were placed on the selection of a speaking task. Essentially it had to meet three requirements. Firstly, because some types of dysfluency are produced as cognitive complexity increases, it was deemed to be important that the nature of the task be relatively simple, in order to give the speakers the greatest opportunity for fluency. Secondly, it was necessary to find a topic that was of interest to all participants, and one which could be addressed by children of varying intellectual ability, yet which would still allow for individual creativity and predilection. Thirdly, it had to involve and maintain the audiences' interest, so that negative reaction because of boredom would be minimized.

With those considerations in mind, each of the children selected as a speaker was asked to sit down with three friends of his or her own choice to decide what should be put into a film about their school, were one to be made for demonstration to children living in another part of Canada. The speakers would then present their groups' ideas to three audiences in turn, who would assign a score of between 1 to 5 according to the attractiveness of the ideas presented. These voting sheets were merely a device to keep audience attention focussed throughout the presentations.

To provide a starting point for discussion, the Grade Six classes participating in the study, were shown a film depicting the life of students in two schools in rural northern Alberta. This film showed some of the curricular, extra-curricular and physical aspects of life in those settings.

The small group discussions followed. The children were allowed twenty minutes preparation time in which they could consider and select ideas for the subsequent presentations. These discussions were unstructured, leaving the children free to use the time however they chose.

The Context

The speakers then rotated through three audiences, facing each group in a formal manner. The amount of verbal interaction was nil, with each speaker delivering an uninterrupted monologue. There was, of course, some non-verbal interaction and smiling, laughing, whispering between audience members, eye contact, etc. The situation required the speakers to attempt to use the more expanded form of the language described by Bernstein (1958) as 'formal' in keeping with the structure of the setting, in contrast to the 'public' form of the language used between peers and when there is close contact between speaker and listener. Most of the speakers used notes made in the small group discussions as an aide-memoire, though a few relied entirely upon their recollection. By reducing verbal interaction, formalizing the speaker-listener confrontation, and decreasing the spontanaiety of utterance, three of the factors described by Barnes as being responsible for increased social distance were present. Three more were added by manipulating the audiences.

The Audiences

By changing the size of the audience, the status relationship of speaker to audience, and the familiarity between the participants, further distancing occurs, if those changes are in the direction of increased size, unequal status, and lessened familiarity. In this study, the three audiences knew each speaker more, or less intimately, and were

more or less equal, in terms of age and status. The size was inevitably increased, as the lone speaker always faced a group, though this varied in number from school to school. The identities of the audiences were:

Audience A - most familiar and most equal in status: members of the speakers' own home-room.

Audience B - less familiar, but equal: members of the other Grade Six class in the same school.

Audience C - least familiar, not equal in status: an adult group, comprised of school personnel, parent volunteers, and graduate students from the University.

The Collection of the Data

1. The Speech Sample

The six speakers rotated through the three audiences in a predetermined order using a Latin square design: (ABC, CBA, CAB, BCA, ACB, BAC). This controlled for order effect, and also ensured the most efficient use of the time available. The presentations given were recorded at 7-1/2 r.p.m. on a Sony TC 105 reel-to-reel tape deck, using a neck microphone to ensure stable volume levels and to minimize bruit. The presence of the tape recorder did not appear to produce anxiety per se, but if it did, it was a constant factor in each situation.

2. Teacher Ratings

The home-room teachers of the speakers were asked to provide an estimate of three personality traits in each child by indicating along a linear scale the degree to which he or she:

(a) usually participated orally in class by volunteering information, asking questions, or contributing to discussion,

(b) demonstrated dependence or independence in making decisions and carrying out activities,

(c) appeared to be popular or unpopular with his classmates.

A child who was generally in good standing with his peers would be facing the A-audience especially, more comfortably than a child who was unpopular, and also the audience reaction to the speaker would range from positive to negative, which could affect the dysfluency, rate and time measures. If a child was deemed to be dependent, or a non-participant in class interaction, his feelings of anxiety at being separated from the group would predictably be stronger than those of an independent, participating student.

While recognizing that only one teacher's perception of the child was being used, and that this was a subjective judgment, it was late enough in the year for the childrens' behavior to have been observed over several months on a daily basis, so it was considered to be an informed judgment.

The teachers were also asked to indicate the extent of subjects' previous experience in addressing group audiences. This was a reflection of the practices in a given school for all students rather than the selected individuals.

3. Intelligence Scores

From the cumulative records of the subjects for the study, the most recent I.Q. score was obtained. The test that had been given was the Lorge-Thorndike and it had been administered within the previous six months. A composite score, as suggested in The Manual for Canadian Lorge-Thorndike (p. 26) was derived from the verbal and

non-verbal scores. This was used in order to minimize any lowering of the verbal score, which requires good reading skills which some students might not possess.

Analysis of the Data

The seventy-two tapes generated by the twenty-four subjects in the three audience situations were timed and transcribed verbatim. Measurements were made from them of the following quantities for each utterance:

(a) Time spoken.

(b) The number of words.

(c) Eight categories of dysfluency. These were:

1. interjections of syllables - er, um, oh, etc.,
2. interjections of words - well, like, you know, etc.,
3. repetition of syllables,
4. repetition of words,
5. repetition of phrases,
6. false starts - a shift in direction involving either semantic or structural changes,
7. non-vocal hesitations inter-phrase, i.e. at the end of word groups: juncture pauses,
8. non-vocal hesitations intra-phrase, i.e. within word groups, before completing a thought unit.

The entire corpus was analysed for all but two subjects who spoke at great length, and in those transcriptions, the first and last segments were scrutinized, approximately five hundred words altogether in each case.

These quantities were processed further to yield measurements of:

(d) rate of utterance, expressed as words per minute:

$$\frac{\text{total number of words}}{\text{time spoken in seconds}} \times 60$$

(e) total dysfluency count: the sum of dysfluency categories 1 to 8, minus category 7, (inter-phrase hesitations) which were regarded as valid punctuation pauses rather than dysfluencies,

(f) dysfluency ratio - the relative amount of dysfluency in each utterance, expressed as a percentage:

$$\frac{\text{number of words}}{\text{total dysfluency count}} \times 100$$

Measurements were also made from the teacher rating sheets for the three personality traits and degree of previous speaking experience. When providing the information, the teacher had marked what he or she considered to be an appropriate point along a line that represented continua from a positive to a negative pole. The line represented a 6-0 scale, and a numerical value was obtained by measuring the distance along the line to the point at which the marks were made. I.Q. scores, sex of the speaker, and school attended were also entered into the data for consideration of possible significance.

Statistical Analysis

In order to analyse the relationships between audience and dysfluency level, time of presentation, rate of utterance, together with the effects of sex, intelligence level, socio-economic group status, personality traits and previous exposure on these variables, the Statistical Package for the Social Sciences Computer programme was used, with the assistance of the Division of Educational Research Services, the University of Alberta, to compute means, standard deviations and Pearson product-moment correlations among all the variables.

The finding of a statistically significant coefficient of correlation would warrant an investigation in one of two directions. Kenney and

Keeping (1954) refer to the relationship as a two-way average. Alternatively, "it may be that a change in one variable is the cause of a change in the other" (Kenney & Keeping, 1954, P. 262). For example, if a higher level of dysfluency was found to be present in one audience rather than another in conjunction with low popularity or independence ratings, it might well illustrate the latter. If lower socio-economic status caused an increase in dysfluency, the former correlation would be illustrated.

Reliability of Scoring

Transcriptions of three subjects' presentations to all three audiences were scored independently by two judges. The choice of subjects was arbitrary, and included one subject from each school. Criteria used were explained by the examiner, and a separate sample set was scored co-operatively in a training session. Using the Arrington formula (1930) from Feifel & Lorge (1950) as a measuring device of inter-rater reliability, i.e.

$$\frac{2 \times \text{agreements}}{(2 \times \text{agreements}) + \text{disagreements}}$$

the reliability was .986. This seemed to establish the stability of the criteria used to categorize dysfluency, and to arrive at a competent measurement without noticeable and appreciable difference between scorers.

Summary

This chapter describes the design of the study, the approach taken to elicit the language samples, the type of objective and statistical analysis used, and the variables and co-variables that were considered as possible influences upon subjects' dysfluency.

CHAPTER IV

FINDINGS

The previous chapter described the design of the study and the procedures used to collect and analyse the data. In this chapter, the findings will be reported.

The central concern of the study was to examine whether or not a speaker's fluency would alter as the composition of the audience changed from being familiar to less familiar, and of equal to unequal status, in relation to the speaker. Variation would not be due to the content of the language but to performance changes reflecting different levels of anxiety generated by a given audience.

The proportionate amount of dysfluency produced in each audience situation was examined for the group of subjects as a whole, and then in relation to sex difference, socio-economic group membership, and for subjects who had more, or less previous exposure to formal speaking situations.

The relationship of the speakers' intelligence and three personality traits to the degree of dysfluency produced in each audience situation was also examined.

Finally alterations in length of presentations and rate of utterance were measured and reported for the group as a whole, by sex, socio-economic status and degree of previous speaking experience.

The data for the statistical analysis were processed through the Social Sciences Research Package which gives means, standard deviations, and Pearson product-moment coefficients of correlation. More rigorous analyses of variance were not used since the data were based on a small

number of subjects distributed over several cells. All findings are thus based on inferences from means, standard deviations and measures of correlation and the findings, while less firm, will identify factors warranting further investigation. All of the data are set out in Appendices A and B.[1]

Section One

The Relationship Between Degree of Dysfluency and Audience Composition

The Total Group

Dysfluency was measured in two ways: by looking at the total number of dysfluencies produced by the speakers in each audience situation, and also by calculating the dysfluency ratio - the amount of dysfluency proportionate to the number of words uttered. The latter measurement is the most meaningful as it is not influenced by differences in the length of presentations.

An examination of the means and standard deviations of dysfluency ratios in the three presentations for the group as a whole showed a consistent level of dysfluency throughout, regardless of audience composition (Table 4.1). The Pearson product-moment coefficients of correlation for audience and dysfluency ratio are shown in Table 4.2. These relationships were positive and significant demonstrating the stability of the degree of dysfluency throughout the total group.

Sex Difference

Boys and girls responded similarly to the B audience (less familiar peers) but a difference appears in presentations to the other two

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[1] Missing data, resulting from one unrecorded tape, were generated by the SSPS programme and are a consistent factor in all analyses.

audiences. The girls were least dysfluent in the adult audience situation (C) and most dysfluent in the familiar peer group audience (A) while the opposite trend appears in the boys' results (Fig. 4.1). The difference is not a balanced difference however, as a comparison of total group means and sub-group means will show. The boys' dysfluency increased less in the adult group situation than the girls' in the familiar peer group (Table 4.3). In other words, one might infer that the girls were relatively more uneasy with their familiar peers than were the boys with the adults, their least preferred audience.

A difference also appears in the strength of the correlations among dysfluency ratios and audiences for the two sexes, the girls seeming to be more variable throughout (Table 4.4). There were significantly high positive relationships for boys in all three audiences, while for girls the degree of relationship was lower and significant in only one instance.

Socio-economic Group Status

Tables 4.5 and 4.6 show the means and standard deviations for dysfluency ratios across the three audiences of children in the high, middle and low socio-economic groups, and the intercorrelations of audience and socio-economic status.

The results indicate that there is a tendency for dysfluency ratios to increase as socio-economic group status goes down from highest to lowest. This is graphically illustrated in Fig. 4.2, and is in keeping with Bernstein's reports of similar differences. Furthermore, the low group finds all audiences equally productive of higher levels of dysfluency. The high and middle groups are more alike, though the high group tends to display more fluency in the B audience than in the other two situations.

TABLE 4.1

DYSFLUENCY RATIOS OCCURRING IN THREE AUDIENCE SITUATIONS: TOTAL GROUP MEANS AND STANDARD DEVIATIONS

	Dysfluency Ratio	
	Means	S.D.
Audience A	22.7	9.3
B	22.5	8.6
C	22.5	8.7

TABLE 4.2

RELATIONSHIP AMONG DYSFLUENCY RATIOS IN THREE AUDIENCE SITUATIONS: TOTAL GROUP

Audience	B	C
A	.69***	.45*
B		.75***

***significant at the .001 level.

*significant at the .05 level.

TABLE 4.3

DYSFLUENCY RATIOS OCCURRING IN THREE AUDIENCE SITUATIONS: MALE/FEMALE MEANS AND STANDARD DEVIATIONS

	Dysfluency Ratios			
	Male		Female	
	Mean	S.D.	Mean	S.D.
Audience A	19.9	6.7	25.4	11.0
B	21.8	8.3	23.3	9.2
C	24.5	8.5	20.5	8.8

TABLE 4.4

RELATIONSHIP AMONG DYSFLUENCY RATIOS IN THREE AUDIENCE SITUATIONS: MALE/FEMALE GROUPS

Male			Female		
Audience	B	C	Audience	B	C
A	.94***	.68**	A	.53	.45
B		.91***	B		.67*

***significant at the .001 level.

**significant at the .01 level.

*significant at the .05 level.

FIG. 4.1

DYSFLUENCY LEVELS IN THREE AUDIENCE SITUATIONS SHOWING MALE/FEMALE DISTRIBUTION

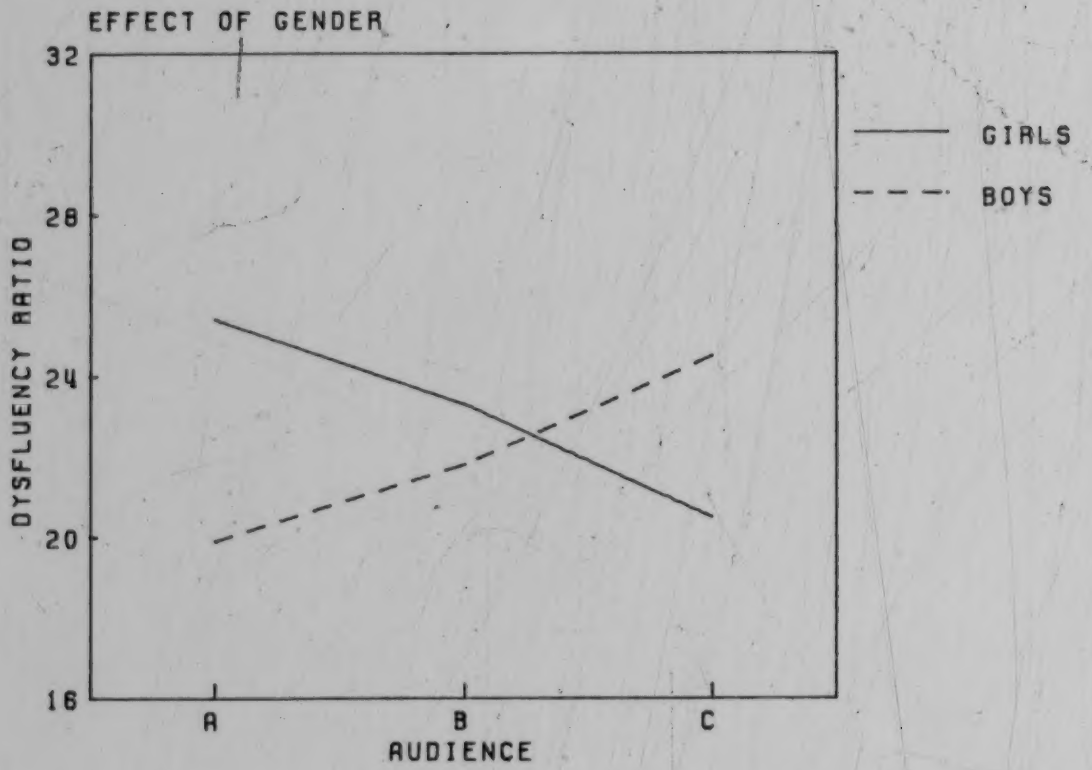


TABLE 4.5

DYSFLUENCY RATIOS OCCURRING IN THREE AUDIENCE SITUATIONS: SOCIO-ECONOMIC STATUS GROUP MEANS AND STANDARD DEVIATIONS

	Dysfluency Ratios					
	High S.E.S.		Middle S.E.S.		Low S.E.S.	
	Mean	S.D.	Mean	S.D.	Mean	S.D.
Audience A	23.3	7.1	18.1	5.5	29.8	11.7
B	18.4	2.5	22.0	5.0	30.1	8.0
C	22.5	5.1	19.4	7.0	28.9	9.7

TABLE 4.6

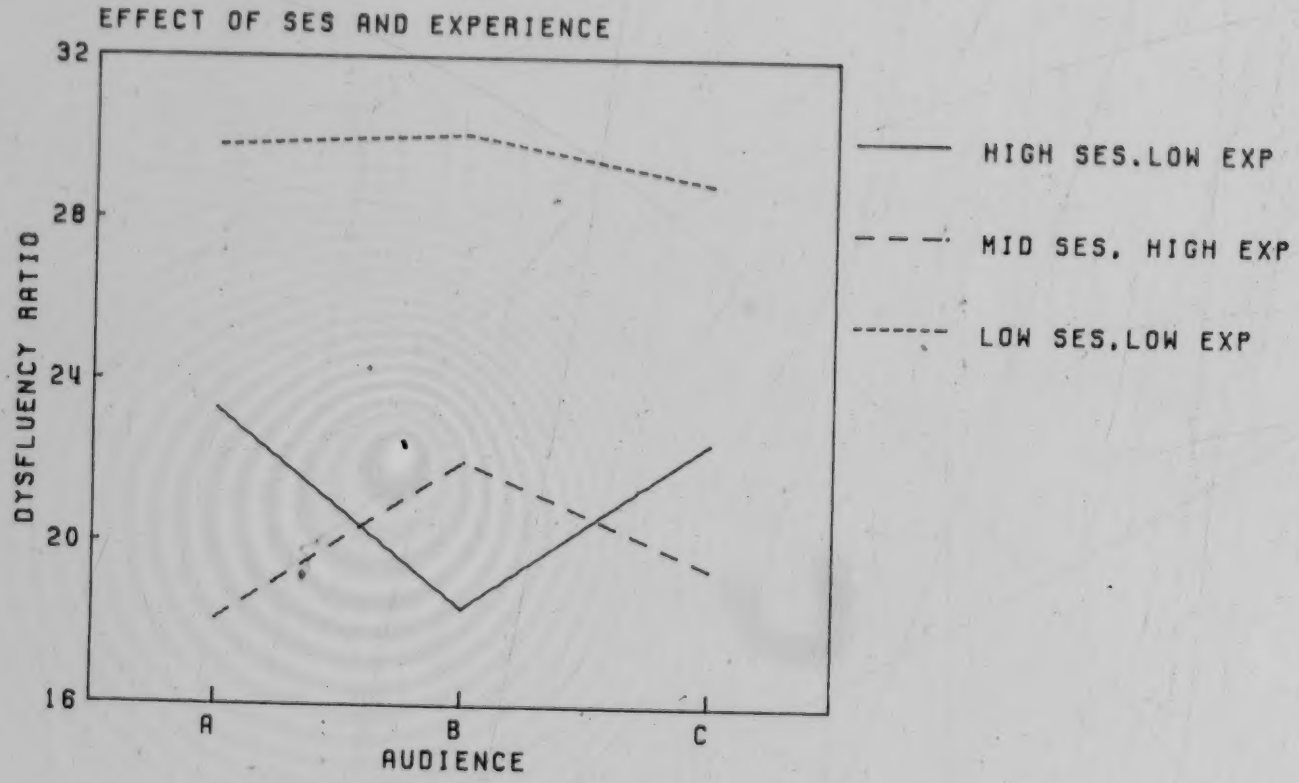
RELATIONSHIP BETWEEN DEGREE OF DYSFLUENCY AND SOCIO-ECONOMIC GROUP STATUS IN THREE AUDIENCE SITUATIONS

	Audience		
	A	B	C
Socio-economic group status	-0.12	-0.54**	-0.28

**significant at the .01 level.

FIG. 4.2

DYSFLUENCY LEVELS IN THREE AUDIENCE SITUATIONS SHOWING DISTRIBUTION ACCORDING TO SOCIO-ECONOMIC GROUP MEMBERSHIP AND PREVIOUS SPEAKING EXPERIENCE



Previous Speaking Experience

Some children had had considerably more experience in speaking to an audience than others because of the practices within the different schools in this regard. Two groups were reported by their teachers to have "considerable experience", and were clustered around ratings of 5 and 6 on a 0-6 scale: two groups by contrast were reported to have "little experience" and were clustered around 2 and 1. The distribution table in Appendix A identifies the groups. Looking at the dysfluency ratios with respect to this factor, there is seen to be a discernible difference between the two groups (Table 4.7, Fig.43). Performance in the familiar peer group audience (A) in particular reflected the greatest disparity between the two groups which can be identified again upon examination of the significant negative correlation between teacher rating (T_4: degree of previous speaking experience) and dysfluency ratios by audience (Table 4.8). The B audience (less familiar peers) shows the weakest relationship to previous speaking experience.

To summarize this section, it is found that:

1. Overall dysfluency levels for the total group of subjects did not appear to be influenced by audience differences.
2. Girls and boys responded differently to the familiar peer audience (A) and the adult audience (C). Boys spoke most fluently to the former audience, and least fluently to the latter, while girls demonstrated reverse trends.
3. The less-familiar peer group (B) seemed to be the most neutral audience for both sexes.
4. Dysfluency levels were higher in all audience situations for subjects from the low socio-economic group.

TABLE 4.7

DYSFLUENCY RATIOS OCCURRING IN THREE AUDIENCE SITUATIONS: HIGH/LOW PREVIOUS SPEAKING EXPERIENCE GROUP MEANS AND STANDARD DEVIATIONS

	Dysfluency Ratios			
	High Experience		Low Experience	
	Mean	S.D.	Mean	S.D.
Audience A	18.1	5.5	26.6	9.4
B	22.0	5.0	24.3	5.3
C	19.4	7.0	25.7	7.4

TABLE 4.8

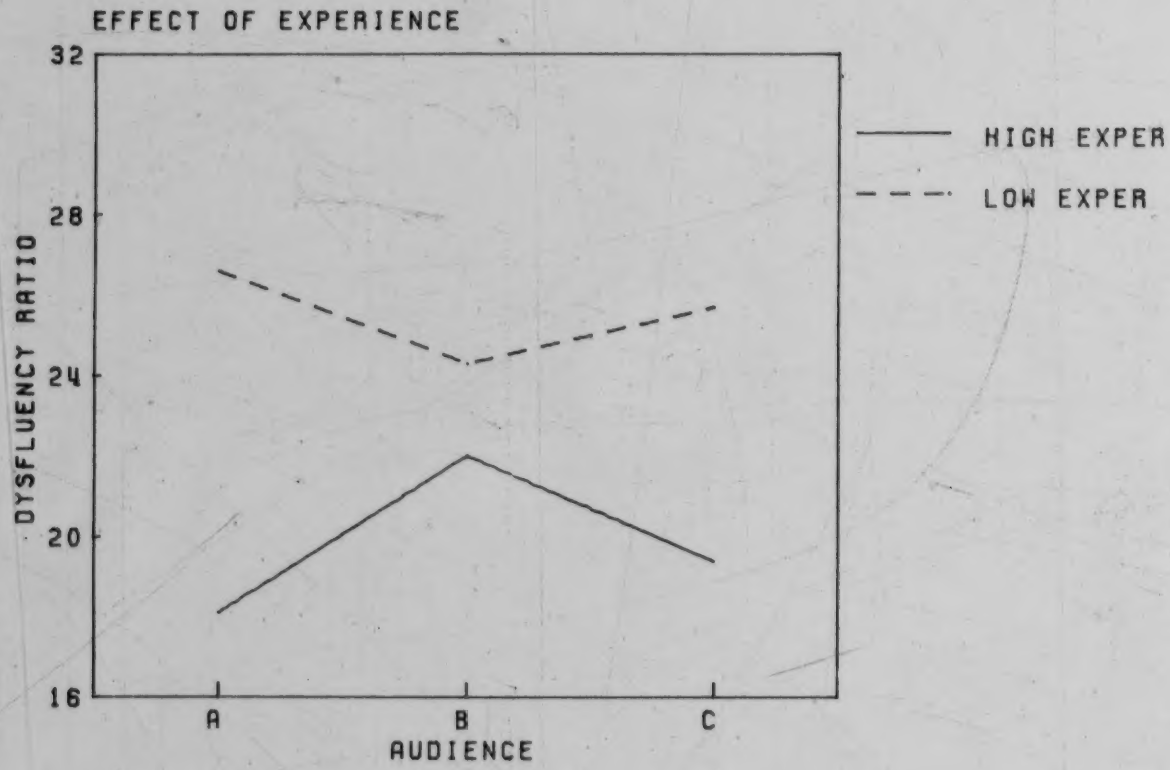
RELATIONSHIP BETWEEN DEGREE OF DYSFLUENCY AND PREVIOUS SPEAKING EXPERIENCE IN THREE AUDIENCE SITUATIONS

	Audience		
	A	B	C
T_4 (Previous Experience)	-0.61**	-0.32	-0.39

**significant at the .01 level.

FIG. 4.3

DYSFLUENCY LEVELS IN THREE AUDIENCE SITUATIONS SHOWING
TWO LEVELS OF PREVIOUS SPEAKING EXPERIENCE



5. The less-familiar peer group audience (B) again related to variation in degree of dysfluency, with the least degree of dysfluency occurring as socio-economic group status increased.

6. Previous speaking experience was related to lower levels of dysfluency in all audience situations. Less experienced speakers were most dysfluent in the familiar peer group audience (A); then in the adult audience (C); and least in the less-familiar peer group audience (B).

Section Two

The Relationship Between Degree of Dysfluency in Three Audience Situations, and Intelligence

The children in this study represented a wide range of intellectual capacity, ranging from an I.Q. score of 79 to 141. The distribution, means and standard deviation of the scores are set out in Table 4.9. The highest average was found in the high socio-economic status group, and this is reflected in the correlation between the two factors (.66; significant at the .01 level).

No significant relationship appears to exist between the intelligence of the subjects as a total group and the level of dysfluency in any audience, though there is a suggestion of a trend for the familiar peer group (A audience) to relate to higher dysfluency levels in the more intelligent speakers (Table 4.10).

A rather interesting reiteration of this trend, though again not statistically significant, is noted when looking at the relationship between dysfluency ratio and female intelligence in this particular audience situation (Table 4.11). The more intelligent the girls were,

TABLE 4.9

RANGE, DISTRIBUTION, MEANS AND STANDARD DEVIATION OF I.Q. SCORES

I.Q.	N
45 - 79	1
80 - 84	1
85 - 89	2
90 - 94	3
95 - 99	2
100 - 104	2
105 - 109	3
110 - 114	2
115 - 119	3
120 - 124	3
125 - 129	0
130 - 134	1
135 - 139	0
140 - 144	1
	24

Mean I.Q. - 105.8

S.D. - 15.9

TABLE 4.10

RELATIONSHIP BETWEEN INTELLIGENCE AND DYSFLUENCY OCCURRING IN THREE AUDIENCE SITUATIONS: TOTAL GROUP

Dysfluency in Audience	A	B	C
Intelligence	.30	-0.17	-0.13

TABLE 4.11

RELATIONSHIP BETWEEN INTELLIGENCE AND DYSFLUENCY OCCURRING IN THREE AUDIENCE SITUATIONS: MALE/FEMALE GROUPS

Dysfluency in Audience	A	B	C
Male I.Q.	-0.33	-0.47	-0.40
Female I.Q.	.41	.06	.05

the more dysfluent they tended to be in this one audience only, whereas the more intelligent the boys were, the less dysfluent they appeared in every situation.

The Relationship Between Degree of Dysfluency in Three Audience Situations and Teacher Ratings of Three Personality Traits

The teachers most closely associated with each subject gave an estimate of the child's participation in oral class work, independence, and popularity with his or her fellow students. It was postulated that differences in these traits might cause some audiences to have a more positive or negative effect upon fluency levels. The scoring was on a 0-6 scale, from least to most, and the frequency of distribution of scores assigned by the teachers is set out in Table 4.12, for the total group and also by sex. The sex differences are also graphed in Figs. 4.4, 4.5 and 4.6, and it is apparent that boys, with 75% of the group rated 5 or 6, are perceived by their teachers to participate more in oral class work, and as being more independent. They also have a slight advantage in the peer group popularity rating, (58%) but not as marked as in the other two.

There are significant and positive relationships among the three teacher ratings for the group as a whole (Table 4.13). Children who are perceived as independent also tend to be rated higher on class participation and on popularity with fellow students.

No relationship appears to exist between these ratings and degree of dysfluency in any audience situation for the total group (Appendix B).

Male-female differences surface again however in these relationships (Tables 4.14, 4.15). Boys seem able to use their positive personality traits (T_2, T_3) in all audiences - those who have a high degree of independence have lower dysfluency ratios in all audience situations, as

TABLE 4.12

FREQUENCY OF SCORES ASSIGNED BY TEACHERS FOR ORAL PARTICIPATION IN CLASS (T_1); DEGREE OF INDEPENDENCE (T_2) AND PEER GROUP POPULARITY (T_3) FOR TOTAL GROUP AND BY SEX

Score	Frequency T_1			Frequency T_2			Frequency T_3		
	Total Group	M	F	Total Group	M	F	Total Group	M	F
0	4.2	-	8.3	4.2	-	8.3	4.2	-	8.3
1	-	-	-	12.5	8.3	16.7	-	-	-
2	12.5	16.7	8.3	8.3	8.3	8.3	16.7	25.0	8.3
3	16.7	-	33.3	8.3	8.3	8.3	16.7	8.3	25.0
4	16.7	8.3	25.0	8.3	-	16.7	16.7	8.3	25.0
5	20.8	33.3	8.3	41.7	58.3	25.0	33.3	41.7	25.0
6	29.2	41.7	16.7	16.7	16.7	16.7	12.5	16.7	8.3
Mean	4.2	4.8	3.7	4.0	4.4	3.5	3.9	4.2	3.7
S.D.	1.7	1.5	1.7	1.8	1.6	2.1	1.6	1.5	1.6

TABLE 4.13

RELATIONSHIPS AMONG TEACHER RATINGS OF ORAL PARTICIPATION (T_1), INDEPENDENCE (T_2) AND PEER GROUP POPULARITY (T_3): TOTAL GROUP

	T_2	T_3
T_1	.54**	.56**
T_2		.77***

***significant at the .001 level.
**significant at the .01 level.

FIG. 4.4

FREQUENCY DISTRIBUTION OF SCORES ASSIGNED BY TEACHERS TO MALE AND FEMALE SUBJECTS FOR ORAL PARTICIPATION IN CLASS (T1)

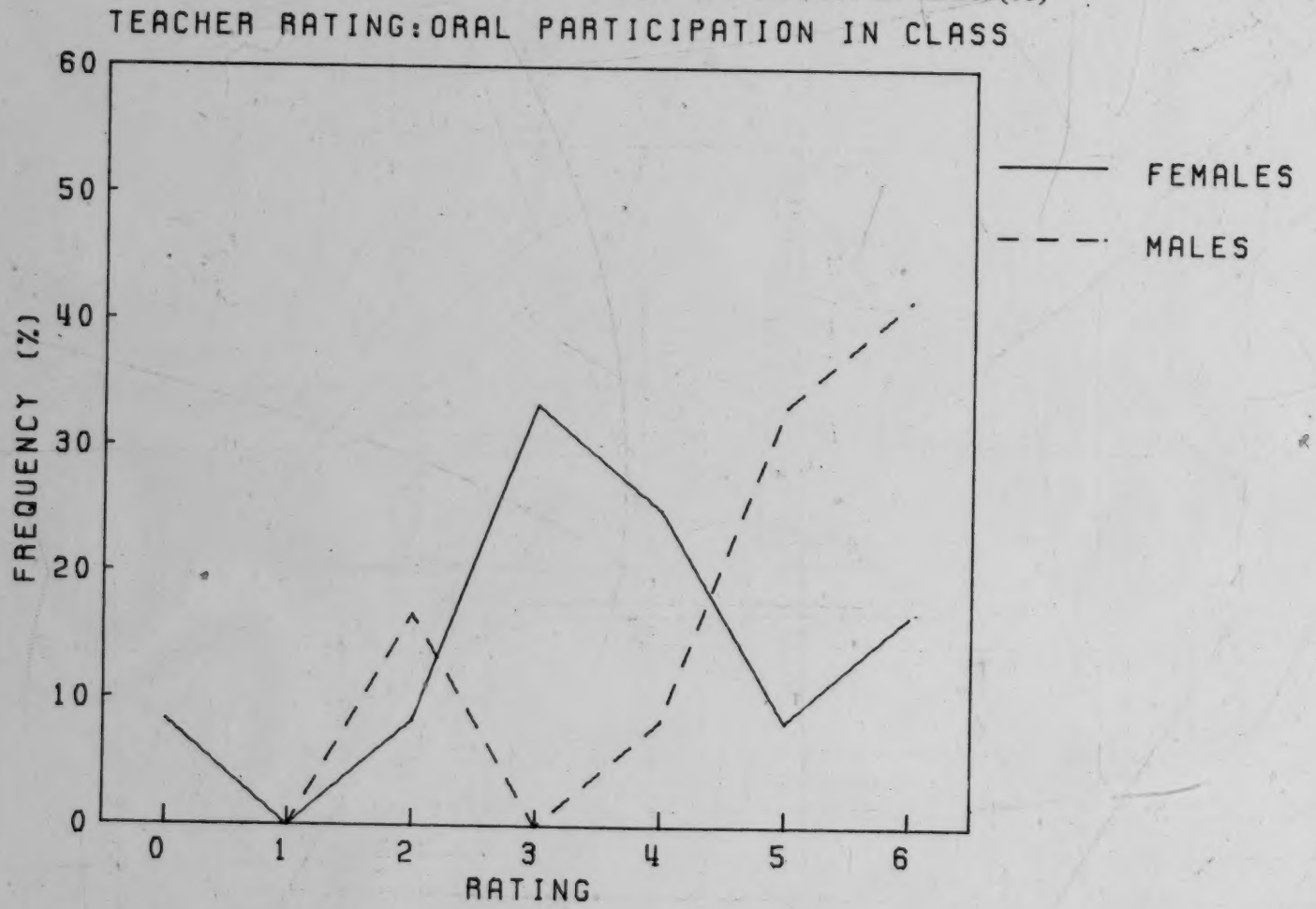


FIG. 4.5

FREQUENCY DISTRIBUTION OF SCORES ASSIGNED BY TEACHERS TO MALE AND FEMALE SUBJECTS FOR DEGREE OF INDEPENDENCE (T2)

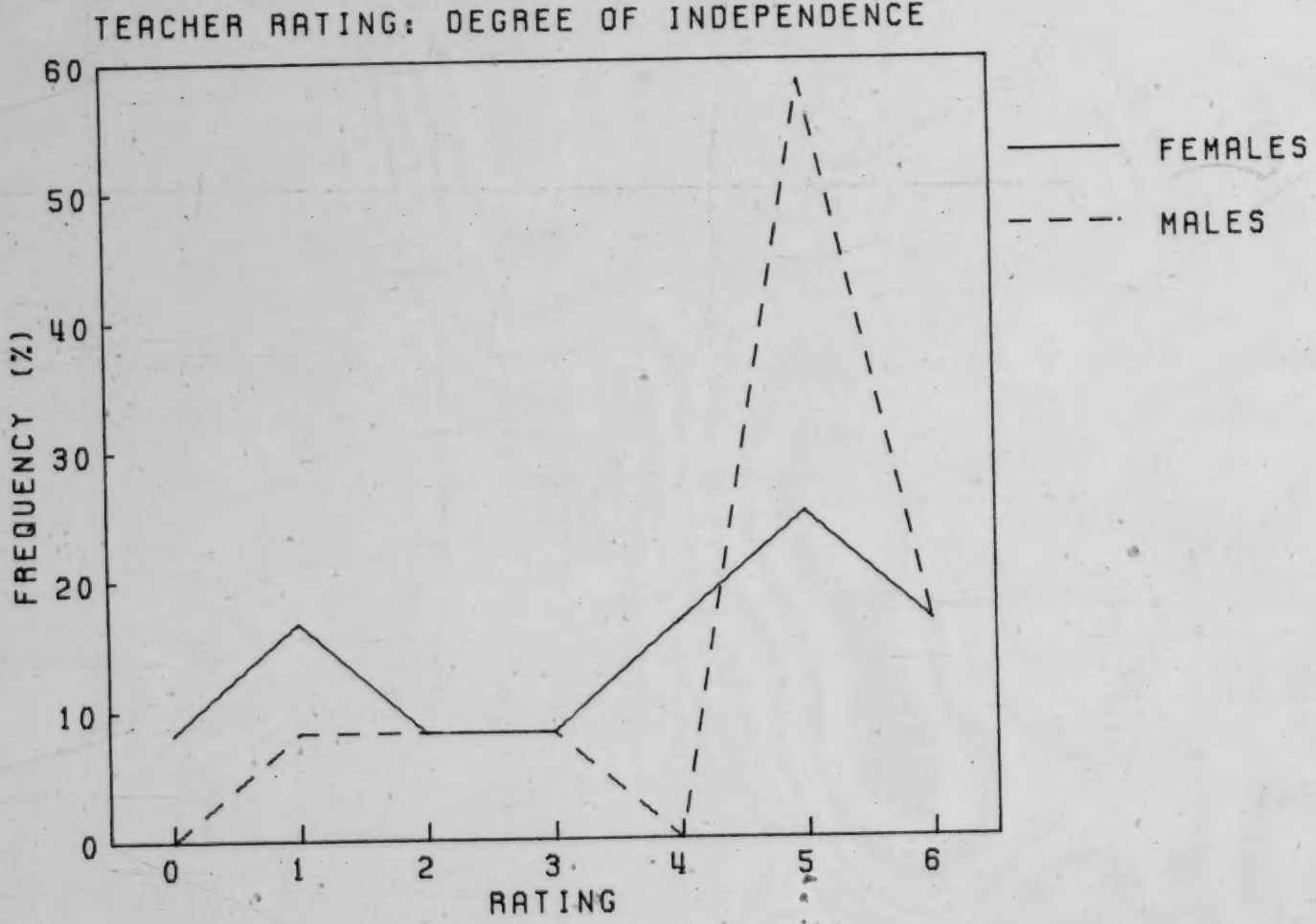


FIG. 4.6

FREQUENCY DISTRIBUTION OF SCORES ASSIGNED BY TEACHERS TO MALE AND FEMALE SUBJECTS FOR PEER GROUP POPULARITY (T3)

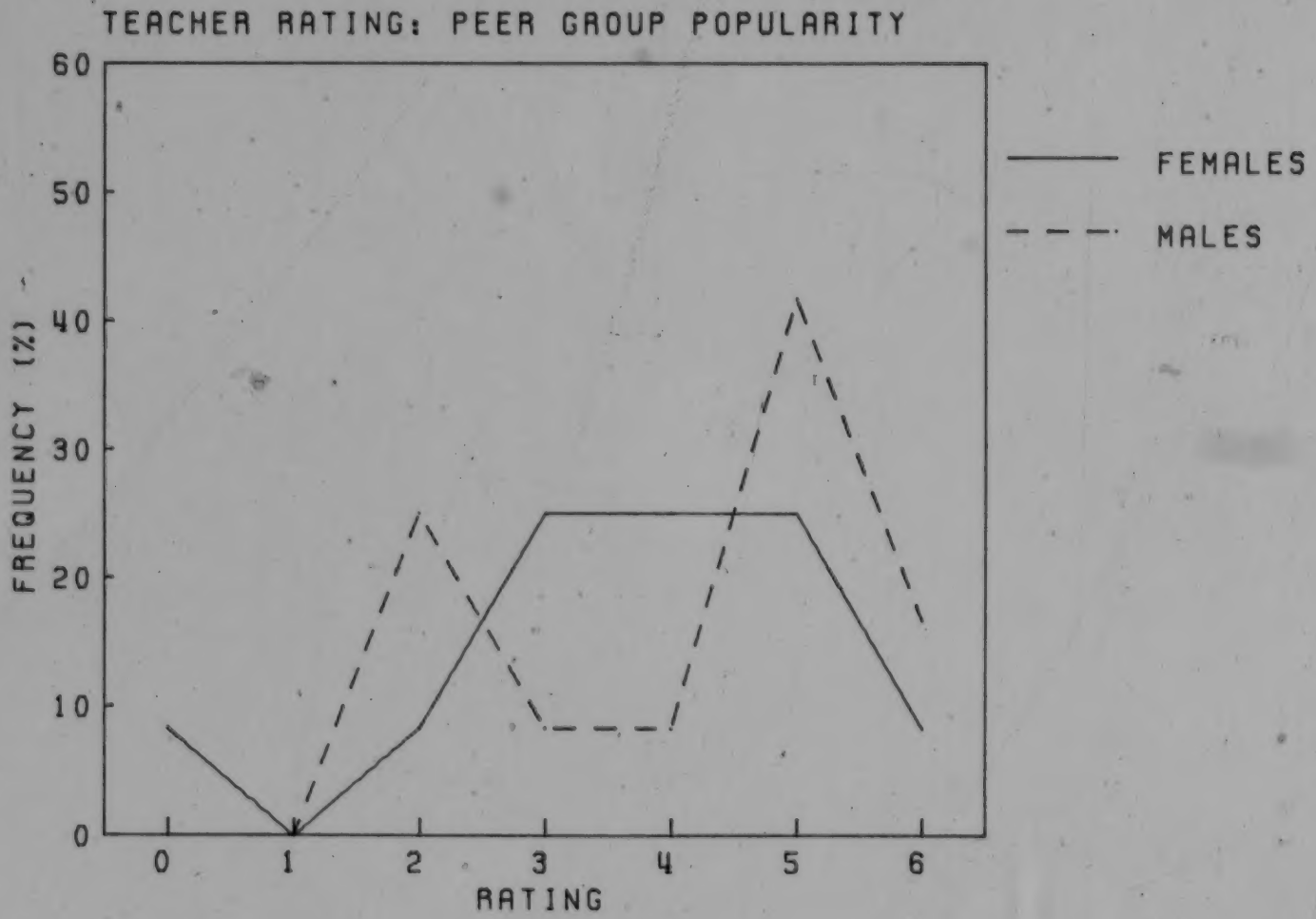


TABLE 4.14

RELATIONSHIP BETWEEN PERSONALITY TRAIT TEACHER RATINGS AND DYSFLUENCY RATIOS IN THREE AUDIENCE SITUATIONS: MALES

	T_1	T_2	T_3
Dysfluency Ratio A	-0.19	-0.72**	-0.62*
B	-0.24	-0.75**	-0.59*
C	-0.12	-0.69**	-0.41

TABLE 4.15

RELATIONSHIP BETWEEN PERSONALITY TRAIT TEACHER RATINGS AND DYSFLUENCY RATIOS IN THREE AUDIENCE SITUATIONS: FEMALES

	T_1	T_2	T_3
Dysfluency Ratio A	.78***	.69**	.29
B	.26	.37	-0.0
C	.01	.22	.00

***significant at the .001 level.
**significant at the .01 level.
*significant at the .05 level.

do those regarded as popular, most markedly in the peer group audience (A), but showing a similar trend in the adult audience (C) also. Oral participation in class (T_1) seems to be unrelated to Dysfluency Ratio. Girls who are regarded as being independent (T_2), who participate most in class interaction (T_1) have higher degrees of dysfluency when in the familiar peer group audience only. In this female group, popularity is not related to dysfluency level in any audience situation.

To summarize the findings in this section:

1. Dysfluency is not significantly related to intelligence over the total group though there is a trend towards positive relatedness in the familiar peer group context, especially amongst the girls.
2. A positive relationship appears to exist between intelligence and socio-economic group status in this group of subjects.
3. The boys were perceived by their teachers to be more independent, more active in participation in oral class work, and more popular with their peers, than the girls.
4. While no relationship exists between the degree of dysfluency and the personality traits identified in this study for the group as a whole, boys and girls once more show some interesting differences, with the familiar peer group (A audience) apparently affecting, in a negative manner, those girls who are more active in class participation and more independent. The other two audiences do not exert the same influence.

Section Three

The Relationship Between Length of Presentation and Audience Composition

The length of presentation appears to be more a matter of individual predilection than the result of any audience effect. Those subjects who

found the most to say in one presentation were equally verbose in subsequent presentations, while those who were laconic, remained so throughout. There was an extremely wide range of speaking times in all audiences, and variance in length of presentation is so great that discussion of the implication of this factor becomes meaningless (Table 4.16).

Inter-relationship of times spoken to each audience (Table 4.17) were significantly high and positive, which further supports the rationale that this is an individual characteristic. It is suggested that any studies based on this variable should recognize individual differences.

None of the sub-groups - male/female, socio-economic group membership, or previous speaking experience, showed any pertinent trends with regard to length of presentation in any audience situation.

The Relationship Between Rate of Utterance and Audience Composition

Although the mean rate of utterance remains fairly stable among the subjects in this study across the three audiences, lending support to the contention that rate is a relatively fixed phenomenon, subject to the ability of the articulatory mechanism to make the necessary shifts from one position to another, there is found to be a wide range amongst individuals, and also considerable variance (Tables 4.18, 4.19, 4.20). Speakers appear to maintain a particular rate in each audience as the positive and significant correlations indicate. As in this factor not only rate of articulation, but hesitancy, or pausing time, is to be considered, the relationship between rate and dysfluency appears to suggest that in the A audience (familiar peers) and the C audience (adults) more hesitancy occurs, while this is not as marked in the B audience.

TABLE 4.16

THE TIME SPOKEN TO EACH AUDIENCE; RANGE, MEANS AND STANDARD DEVIATION: TOTAL GROUP

	Range	Mean	S.D.
Audience A	25 - 280 secs.	89.7	68.8
B	22 - 356 secs.	93.2	71.8
C	33 - 360 secs.	102.8	82.5

TABLE 4.17

RELATIONSHIP BETWEEN LENGTH OF PRESENTATION AND AUDIENCE

	B	C
Audience A	.86***	.75***
B		.79***

***significant at the .001 level.

Rate: the sexes

Boys and girls show similar rate patterns in the three audience situations, and neither group deviates markedly from the total group means or pattern of variance (Tables 4.18 and 4.21). A faint echo of the 'least preferred audience' in each group, reported in the section on dysfluency, is seen again in the inter-correlations of rate and dysfluency. The girls show a slower rate and more dysfluency in the A audience situation, (familiar peer group) while the boys demonstrate a similar trend in the adult, or C audience (Table 4.22). In addition, the boys showed the same trend as the girls, towards slower rate and more dysfluency in the A audience also. The B audience (less familiar peers), affects both groups the least.

Socio-economic Group Status

Socio-economic group status did not relate to rate of utterance to any significant degree.

Previous Speaking Experience

Previous speaking experience did not relate to rate of utterance to any significant degree.

To summarize this section:

1. Length of presentation was found to be an individual characteristic and not related to any audience effect.
2. Rate of utterance varied greatly in each audience situation and again the findings suggest that it is most likely to be an individual trait. However, rate and dysfluency do appear to be related with boys most vulnerable in the C (adult) and A (familiar peer group) audiences, and girls in the A (familiar peer group) situation. The B audience (less familiar peers) does not produce any such effect.

TABLE 4.18

RANGE, MEANS AND STANDARD DEVIATION OF RATE OF UTTERANCE IN THREE AUDIENCE SITUATIONS: TOTAL GROUP

	Range	Mean	S.D.
Audience A	64 - 165 w.p.m.	127.1	25.5
B	75 - 172 w.p.m.	128.1	30.3
C	95 - 196 w.p.m.	130.8	28.8

TABLE 4.19

RELATIONSHIP OF RATE OF UTTERANCE AND AUDIENCES: TOTAL GROUP

	B	C
Audience A	.71***	.56**
B		.62***

TABLE 4.20

RELATIONSHIP OF RATE OF UTTERANCE AND DEGREE OF DYSFLUENCY IN THREE AUDIENCES: TOTAL GROUP

	Audience A	Audience B	Audience C
Dysfluency/Rate	-0.49**	-0.32	-0.55**

***significant at the .001 level.
**significant at the .01 level.

TABLE 4.21

RANGE, MEANS AND STANDARD DEVIATION OF RATE OF UTTERANCE IN THREE AUDIENCE SITUATIONS: MALE/FEMALE GROUPS

Audience	Range (w.p.m.) Male	Female	Mean Male	Female	S.D. Male	Female
A	64 - 165	103 - 161	127.2	127.1	27.2	25.1
B	78 - 172	75 - 170	133.1	123.0	25.0	35.5
C	95 - 152	101 - 196	128.2	139.4	22.2	34.4

TABLE 4.22

RELATIONSHIP BETWEEN RATE OF UTTERANCE AND DEGREE OF DYSFLUENCY IN THREE AUDIENCE SITUATIONS: MALE/FEMALE GROUPS

		Audience A	B	C
Dysfluency/rate	Male	-0.51*	-0.36	-0.70**
	Female	-0.56*	-0.28	-0.44

**significant at the .01 level.

*significant at the .05 level.

This chapter has identified the various relationships found to exist between the audience situations and dysfluency levels for the total group of subjects and some sub-groups. Intelligence, three personality traits, and degree of previous speaking experience were also considered for any contribution to the speakers' performance. Length of presentation and rate of utterance were examined also.

CHAPTER V

SUMMARY OF FINDINGS, CONCLUSIONS AND DISCUSSION

Summary

This study investigated the effect of three different audiences upon speakers' oral language performance. The speakers were twenty-four Grade Six children chosen by stratified random selection from three schools in the Edmonton Public School system. The audiences varied both in degree of familiarity and status relationship with the speakers. The effects of subjects' intelligence, socio-economic group membership, sex, personality, and the extent of previous exposure to similar speaking situations were also considered in the investigation. The measures used were degree of dysfluency, rate of utterance and length of time spoken in each presentation. A statistical analysis yielded means, standard deviations and correlation coefficients for nineteen variables.

Findings

While audience composition does not seem to affect dysfluency levels, length of presentation, and rate of utterance for the group of subjects as a whole, different audiences do seem to produce different effects when other variables are considered.

Those children who came from the lowest socio-economic group had higher dysfluency levels across all audiences than the high or middle socio-economic status groups.

Those children who had had previous exposure to formal speaking situations had lower dysfluency levels overall than those who had had little previous experience. The most familiar peer group audience produced the greatest increase in dysfluency among the less experienced speakers.

This same audience also seemed to be the most disruptive for female speakers as a group, and there were indications that the more intelligent and outgoing girls were particularly vulnerable in this situation. Male speakers, on the other hand, seemed to prefer this audience. For them, the adult audience, which was the least familiar and most unequal in terms of status, produced highest dysfluency levels.

The remaining audience, the less familiar peer group, was apparently more neutral and did not produce changes in language flow to the same extent in relation to sex of the speaker, or those in the highest socio-economic status group, or those who had had little previous speaking experience.

Rate of utterance and dysfluency levels were inversely related indicating that output was reduced by hesitancy, and once again this appears most strongly in the familiar peer group audience, and least strongly in the less familiar peer group audience context.

Conclusions and Discussion

While recognizing that this was an exploratory study, and because the number of subjects was small, one cannot make definitive statements, nevertheless some inferences may be drawn from the findings.

1. Although audience composition was not related to levels of dysfluency for the group of speakers as a whole, it did affect specific sub-groups.

Of the three audiences, the home room audience, designated as most familiar, most equal and closest in social distance to the speakers, and the adult audience, least familiar and most unequal in status, seemed to provoke the greatest differences. Boys and girls showed a singular preference, different for each sex, for one audience

over the other. Less experienced speakers, particularly those from the high socio-economic status group who could be said to be more socially aware, were most dysfluent in these two situations. The other audience, however, designated as of equal status but less familiar to the speakers, seemed to produce lower dysfluency levels for the inexperienced speakers, and for both sexes. It appeared to evolve as a more neutral audience. Even though there was more dysfluency in this audience situation amongst the experienced speakers than there was in the other two, one could interpret this to be perhaps a lowering of the guard, a relaxation of attention which the other two audiences called forth, and which, by virtue of their experience, that group of speakers was able to muster.

The implication would seem to be that if one relates dysfluency to anxiety, and in this investigation, all of the subjects expressed anxiety, certainly, when asked how they had felt about the task, then the familiar peer group, who provide the most common audience in classrooms, is as productive of high anxiety as the most removed and unequal of the audiences, the adults, particularly for girls and for the more socially aware students. This can adversely affect their classroom performance and belie their true competence. However, by ensuring greater opportunity to speak to audiences, this effect is lessened, and the optimal audience would seem to be one where there is equality of status but less close familiarity.

2. Intelligence does not seem to influence dysfluency level to the same extent as degree of previous speaking experience or socio-economic status.

In this study one can make various comparisons among these three factors. The group of children from the school in the most affluent district had had little previous experience and the highest group mean I.Q. score, that of 118. The children from the middle socio-economic area school had had considerable previous speaking experience, and the lowest group mean I.Q. score, that of 100. The third group of children from the inner city school, had had little previous experience, and had a group mean I.Q. score of 105. This latter group of children was markedly more dysfluent in all audience situations in comparison to the group of rather less intelligent, but more experienced middle socio-economic status group, or in comparison with the group of children who had a similar lack of experience, but who came from the higher socio-economic status group. Conversely, the children from that high socio-economic status group, with the advantage of higher intelligence but lacking experience, were considerably less able to cope with the anxiety generated by the more stressful audience situations than the middle economic status group who had the experience, if not the intelligence.

Thus there would seem to be a group of children who, as Barnes would say, 'have learned to operate the options' and who are displaying social learning in contrast to those who have had more emphasis placed on cognitive learning. Additionally Bernstein's report that children from the lower socio-economic status groups cannot use oral language as effectively as those from higher socio-economic status groups despite equal intelligence is also echoed.

The implication would seem to be that such social learning is indeed important, and we should give all children the opportunity to

learn to handle situations requiring different verbal skills, this being particularly important for those who do not get much opportunity or range of experience at home.

3. Results of teacher ratings of three personality traits of the speakers, while not significantly related to dysfluency levels in any audience situation for the total group, were interesting as they related to the two sexes.

More boys were rated as taking an active role in oral class participation, being highly independent, and to a lesser degree, as being more popular with their peer group, than girls. This may explain why the familiar peer audience was preferred by the boys, who were able to make use of these positive traits and were more confident and correspondingly less dysfluent as a result when they knew what to expect from audience members' reaction to them as individuals. Significant negative relationships were found to exist for the boys between dysfluency levels and high independence in all three audiences, and between dysfluency levels and popularity in both peer group audiences. The more independent and talkative girls however were most dysfluent in the familiar peer group audience context only. Popularity was not an influence at all.

One can only speculate about the implication of these findings, but just possibly, one is seeing a reflection of traditional male-female roles here, with the boys being able to adapt to an exposed situation more aggressively, and girls still reluctant to appear dominant in front of their male peers. The personality measures were relatively crude in this instance, and certainly a more refined

instrument would be required to substantiate any investigation into possible sex-based behavioral differences.

4. The length of presentations was extremely variable and showed such wide standard deviation that no firm conclusions can be drawn from this measure in regard to any effect of audience composition.

Speakers maintained stable and highly individual speaking times in all audience situations as shown by the highly significant and positive correlations among them. There was a trend for levels of dysfluency to relate to length of presentation in the two peer group settings, but not in the adult audience context, and also the children in general, tended to talk for longer to the adult audience - perhaps because they were the more patient listeners!

It would seem that caution must be excercised when this particular measure is used and the highly individual nature of presentation time should be recognized in any future studies based on this variable.

5. Dysfluency caused rate of utterance to decrease, and this was a measure of the extent of pausing time or non-vocal hesitation, rather than any other type of dysfluency, as repetitions and interjections and false starts were included in the word count when calculating rate.

In the total group results and those of the different sexes, one can again perceive the unique status of the less familiar peer audience which does not reflect lower rate and higher pausing time whereas the other two audiences do. This is the only measure which in any way isolates one particular category of dysfluency and, though it would have been satisfying to see some similarity to

Bernstein's study (reported in Chapter II) he found that the working class group had fewer and shorter pauses than the middle class group reflecting differences in verbal planning strategies of the two groups, whereas nothing in this study indicated that hesitation was related to socio-economic status.

Suggestions for Further Research

1. It would be interesting to explore more aspects of the multi-dimensional audience factor, which this study narrowed to the familiar or less familiar and equal or unequal status relationship. There may be more to be gained by examining the oral language of children who were facing peer groups ranging from the familiar to the unknown; or children who were two years younger than the speakers contrasted with those two years older; or small groups of any of the above versus large groups. It might then be possible to set up some sort of progressive grid or continuum along which a programme designed to promote competence in this facet of social and personal development might best proceed.

2. In view of the differences that were revealed by male and female speakers both in audience preference and in relation to the personality traits that were measured, further studies might pursue speakers' performance in audiences of the same or opposite sex, with other dimensions such as familiar-unfamiliar, equal or unequal status being controlled. The findings in this study are at variance with others that have reported females to be at an advantage in speaking situations.

3. It would seem to be important to pursue the experience effect further, perhaps by replicating this study with groups matched for socio-economic status and intelligence but varying in previous formal speech training to clarify the results reported here.

4. It might be fruitful to consider whether different categories of dysfluency relate to audience composition, socio-economic status or task given to the speaker. That is, ifone gives a task of similar cognitive complexity to children from two distinct socio-economic levels and then introduces the further audience dimension, will it in fact produce alterations in such dysfluency categories as hesitation, repetition or false starts. Very few of the studies reviewed have addressed the added dimension of audience in this regard.

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APPENDICES

APPENDIX A

MEANS AND STANDARD DEVIATIONS FOR ALL VARIABLES: TOTAL GROUP, MALE/FEMALE, AND SOCIO-ECONOMIC GROUP DISTRIBUTION

Variable	Audience	Total Group		Males		Females		School 1 High S.E.S.		School 2(A) Middle S.E.S.		School 2(B) Middle S.E.S.		School 3 Low S.E.S.	
		Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Total Dysfluency	A	38.8	35.4	31.2	22.1	46.4	45.1	23.6	8.3	52.3	41.4	25.3	16.5	58.2	52.4
	B	41.6	39.3	40.5	34.0	42.8	45.7	16.8	5.0	83.3	34.6	24.3	11.3	58.8	53.5
	C	48.2	36.1	49.7	40.3	46.8	33.8	37.6	22.5	76.7	50.1	30.8	18.2	47.8	34.5
Dysfluency Ratio	A	22.7	9.3	19.9	6.7	25.4	11.0	23.3	7.1	20.0	6.4	16.3	4.5	29.8	11.7
	B	22.5	8.6	21.8	8.3	23.3	9.2	18.4	2.5	29.0	4.5	15.2	5.2	30.1	8.0
	C	22.5	8.7	24.5	8.5	20.5	8.8	22.5	5.1	23.2	10.2	15.6	4.0	28.9	9.7
Length of Presentation in Seconds	A	89.7	68.8	78.4	51.9	101.0	83.2	53.0	20.2	145.5	104.6	63.2	22.0	97.0	60.5
	B	93.2	71.8	83.7	43.7	102.6	93.1	51.5	17.1	162.7	106.9	63.7	6.1	94.8	55.1
	C	102.8	82.5	100.4	87.7	105.1	80.8	81.0	46.4	181.2	131.3	75.5	23.6	73.5	38.8
Rate of Utterance in Words per Minute	A	127.1	25.4	127.2	27.2	127.0	25.1	129.1	10.2	126.4	35.5	135.6	21.0	117.4	35.0
	B	128.1	30.3	133.1	24.0	123.0	35.5	121.2	28.8	132.7	12.2	146.5	22.3	112.9	39.0
	C	133.8	28.8	128.2	22.1	139.4	34.4	127.7	13.2	127.0	36.8	150.4	21.8	130.2	37.1
Previous Speaking Experience		3.5	2.2	3.3	2.4	3.7	2.1	2.0	1.1	6.0	0.0	5.0	0.0	1.0	1.1
I.Q.		105.8	15.8	107.1	15.1	104.6	17.1	118.0	21.1	98.0	8.2	102.3	11.2	105.0	15.8
Teacher Rating (Talkativeness)		4.2	1.7	4.8	1.5	3.6	1.7	3.8	2.5	4.0	1.3	4.2	1.6	4.8	1.7
Teacher Rating (Independence)		3.9	1.8	4.4	1.6	3.5	2.1	4.2	2.3	3.8	1.9	3.8	1.9	4.0	1.7
Teacher Rating (Popularity)		3.9	1.5	4.2	1.5	3.7	1.6	3.7	2.2	3.3	1.5	4.8	1.0	3.8	1.2

APPENDIX B

CORRELATION COEFFICIENTS AMONG ALL VARIABLES: TOTAL GROUP

Variable			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1	No. of Dysfluency	A	1.000	.89***	.86***	.68***	.46*	.29	-0.21	.33	.10	.88***	.73***	.63***	.22	-0.38*	.07	.22	.38	-0.16	-0.28
2		B		1.000	.86***	.71***	.54**	.31	-0.09	.29	.13	.76***	.91***	.69***	.03	-0.40*	.01	.18	.16	.09	-0.10
3		C			1.000	.81**	.48**	.43**	-0.24	.21	-0.27	.70***	.66***	.80***	-0.04	-0.10	.04	-0.06	.13	.04	.12
4	Dysfluency Ratio	A				1.000	.68***	.45*	-0.48**	-0.13	.65	.43*	.32	.20	.30	-0.12	.30	.23	.13	-0.10	-0.61***
5		B					1.000	.75***	-0.48**	-0.32	-0.24	.31	.40*	.27	.08	-0.54**	-0.17	.02	-0.10	-0.27	-0.32*
6		C						1.000	-0.47**	-0.38	-0.55***	.16	.12	.20	-0.23	-0.28	-0.15	.04	-0.09	-0.15	-0.39*
7	Rate of Utterance	A							1.000	.71***	.56**	-0.36*	-0.37*	-0.28	-0.01	.19	.06	-0.07	.01	.23	.19
8		B								1.000	.62***	.06	.16	.17	-0.17	.13	.30	.38*	.37*	.54**	.24
9		C									1.000	-0.24	-0.38	-0.48**	.20	-0.03	.01	.28	.10	.12	.06
10	Length of Presentation	A										1.000	.88***	.75***	.17	-0.23	-0.16	-0.07	.09	-0.02	.15
11		B											1.000	.79***	.13	-0.22	-0.04	-0.05	.12	-0.07	.23
12		C												1.000	.03	.03	.03	-0.18	.10	.08	.33*
13	Sex														1.000	.30	-0.0	-0.38*	-0.25	-0.16	.08
14	Socio-economic Status															-1.000	.03	-0.22	.48**	-0.04	.16
15	I.Q.																1.000	.20	.52***	.45**	-0.33*
16	Teacher Rating 1 - Talkativeness																	1.000	.54***	.56***	-0.18
17	Teacher Rating 2 - Independence																		1.000	.77***	-0.07
18	Teacher Rating 3 - Popularity																			1.000	.02
19	Teacher Rating 4 - Previous Speaking Experience																				1.000

***indicates significance at the .001 level of confidence,
**indicates significance at the .01 level of confidence,
*indicates significance at the .05 level of confidence.

CORRELATION COEFFICIENTS AMONG ALL VARIABLES: MALES

Variance			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	Total Number of Dysfluencies	A	1.000	.98***	.63*	.54*	.71*	.61*	.03	-0.11	-0.63*	.94***	.80**	.39	-0.40	-0.19	-0.28	-0.37	-0.35	-0.54*
2		B		1.000	.92***	.45	.67**	.71**	.05	.04	-0.83***	.85***	.94**	.85***	-0.26	-0.11	-0.26	-0.15	.83	.09
3		C			1.000	.22	.59*	.55*	.09	.03	-0.68**	.68**	.71**	.97***	-0.01	-0.03	-0.29	-0.11	.04	.24
4	Dysfluency Ratio	A				1.000	.94***	.68**	-0.51*	-0.47	-0.70**	.60*	.30	.08	-0.29	-0.33	-0.19	-0.72**	-0.62*	-0.60*
5		B					1.000	.91***	-0.48	-0.36	-0.67*	.57*	.56*	.42	-0.38	-0.47	-0.24	-0.75**	-0.39*	-0.11
6		C						1.000	-0.31	-0.42	-0.70**	.61*	.55*	.36	-0.50*	-0.40	-0.12	-0.67**	-0.41	-0.21
7	Rate	A							1.000	.82**	.46	-0.28	-0.13	.08	.17	.61*	.09	.68**	.30	-0.48
8		B								1.000	.42	-0.24	-0.12	.08	.40	.44	.21	.66*	.50	.29
9		C									1.000	-0.61***	-0.63*	-0.68**	.26	.08	.23	.36	-0.04	.24
10	Time	A										1.000	.88***	.66**	-0.40	-0.24	-0.15	-0.15	.05	-0.17
11		B											1.000	.67**	-0.25	-0.14	-0.21	-0.01	-0.02	.12
12		C												1.000	.08	.04	-0.26	.04	.20	.29
13	Socio-economic Status														-1.000	.66**	-0.08	.16	-0.06	.15
14	I.Q.															1.000	-0.19	.45	.21	-0.21
15	Teacher Rating 1 - Talkativeness																1.000	.23	.30	.12
16	Teacher Rating 2 - Independence																	1.000	.77***	.34
17	Teacher Rating 3 - Popularity																		1.000	.25
18	Teacher Rating 4 - Previous Speaking Experience																			1.000

***significance at the .001 level of confidence.
**significance at the .01 level of confidence.
*significance at the .05 level of confidence.

CORRELATION COEFFICIENTS AMONG ALL VARIABLES: FEMALES

Variable			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	Total Number of Dysfluencies	A	1.000	.98***	.93***	.71**	.33	.16	-0.37	.54	.23	.83***	.71**	.66*	-0.35	.20	.32	.29	-0.06	-0.25
2		B		1.000	.89***	.79**	.45	.03	-0.22	.44	.65*	.71**	.89***	.69*	-0.51	.12	.46	.36	.11	-0.27
3		C			1.000	.60*	.39	.31	-0.46	.42	.04	.81***	.76***	.80***	-0.22	.11	.14	.34	.04	-0.05
4	Dysfluency Ratio	A				1.000	.53	.45	-0.56*	.06	.17	.35	.30	.18	-0.31	.41	.78***	.69**	.29	-0.81***
5		B					1.000	.67*	-0.62*	-0.28	-0.03	.12	.28	.05	-0.67*	.06	.26	.37	-0.00	-0.56*
6		C						1.000	-0.63*	-0.46	-0.44	-0.02	-0.01	-0.06	-0.06	.05	.01	.22	.00	-0.57*
7	Rate	A							1.000	.65*	.69**	-0.44	-0.53	-0.48	.20	-0.53	-0.28	-0.58*	-0.10	.46
8		B								1.000	.87***	.26	.31	.35	-0.02	.23	.42	.18	.53*	.21
9		C									1.000	-0.07	-0.25	-0.34	-0.22	-0.02	.43	.06	.29	-0.09
10	Time	A										1.000	.86***	.86***	-0.14	-0.10	.07	.27	-0.01	.38
11		B											1000	.95***	-0.23	.02	.09	.22	-0.07	.32
12		C												1.000	-0.02	.03	-0.11	.18	-0.10	.39
13	Socio-economic Status														-1.000	-0.02	-0.37	-0.06	-0.00	.18
14	I.Q.															1.000	.47*	.68**	.66**	-0.43
15	Teacher Rating 1 - Talkativeness																1.000	.67**	.75***	-0.44
16	Teacher Rating 2 - Independence																	1.000	.76***	-0.40
17	Teacher Rating 3 - Popularity																		1.000	-0.20
18	Teacher Rating 4 - Previous Speaking Experience																			1.000

***significance at the .001 level of confidence.
**significance at the .01 level of confidence.
*significance at the .05 level of confidence.

APPENDIX C

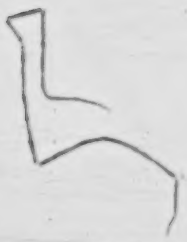

FIGURE 1

THE MAZE - AS DEFINED BY VARIOUS ORAL LANGUAGE STUDIES (ANDERSON, E., 1972)

STUDY	NON-STRUCTURAL ELEMENTS (identified in terms of Strickland's subdivisions)	VARIABLES WITH WHICH THE MAZE WAS CORRELATED
Strickland, 1962 (also Shubkagle, 1960; Degraff, 1961; Francis, 1962)	"mazes" - vocalizations not syntatically or meaningfully pertinent. audible pauses (noises) - unintelligible sounds such as "ah," and "er." holders - the use of such words as "well," "you see," and "now uh" to hold attention. repeats - repetition of words such as "you-you," "I think--I think." edits - words used by the speaker which indicated a correction or change of direction.	Degraff: grade (1, 3, and 5) structured versus non-structured situations for oral language sampling Shubkagle: sex I.Q. (as measured by the California Short Form Test of Mental Maturity, Primary Grades occupational groups (as measured by the Minnesota Scale for Paternal Occupations)
Loban, 1963	"mazes" - series of words or initial parts of words which did not add up, either to meaningful communication or to structural units of communication. Analysis used only the total maze score, which included audible pauses, repeats, and edits.	grade (kindergarten to 6 inclusive) language ability (high and low subjects selected by weighting equally a 100-item vocabulary recognition test and a combined K-6 teachers' rating score

FIGURE 1 (CONTINUED)

STUDY	NON-STRUCTURAL ELEMENTS (identified in terms of Strickland's subdivisions)	VARIABLES WITH WHICH THE MAZE WAS CORRELATED
Khater, 1951	"hesitations" - non-verbal sounds, repetitions, and breaks in sentences. Analysis used only the total hesitation score.	class (kindergartens where chosen to represent upper and lower class areas, then each child was analyzed according to the Index of Status Characteristics (occupation, source of income, house type, and dwelling area) and subjects who were nearest the two extremes were chosen.)
Harrell, 1957	"unrelated words" - included audible pauses, repeats, and edits. Analysis used only the total word score.	grade (age) (9 1/2-grade 4; 11 1/2-grade 6; 13 1/2-grade 8; 15 1/2-grade 10) sex
Riling, 1965	"mazes" - Strickland's definition and subdivisions.	grade (4 and 6) Negro and Caucasian at grade 4 rural and urban sex personality adjustment (as measured by the California Test of Personality - 1953 Revision, Elementary Form AA)

FIGURE 1 (CONTINUED)

STUDY	NON-STRUCTURAL ELEMENTS (identified in terms of Strickland's subdivisions)	VARIABLES WITH WHICH THE MAZE WAS CORRELATED
Hunt, 1965 (written)	"garbles" - any group of words that could not be understood by the investigators	grade (4, 8, and 12)
O'Donnell et al., 1967	"garbles" - false starts, redundant subjects, word tangles and non-communicative repetitions. Analysis used only the total garble score, which included repeats and edits. (Audible pauses and holders were excluded.)	grade (kindergarten to 3, 5 and 7) sex
Levin et al., 1967	"hesitations" - Strickland's definition. The plan was to analyze according to Strickland's subdivisions plus a further division of the edit into (1) the "correction" edit e.g., "the three bears--no the four..." (2) the "incomplete" edit e.g., "and he uh not too many uh and that's the end"	description (oral language obtained with the question, "What happened?") and explanation (oral language obtained with the question, "Why do you think that happened?")

APPENDIX D

FIGURE 2

ORAL LANGUAGE RESEARCH DESIGNS - SELECTED STUDIES (ANDERSON, E., 1972)

STUDY	SUBJECTS	ORAL LANGUAGE SAMPLING
Degraff, 1961	60 subjects. 125 students were randomly selected from a school system's total population at each of three grade levels, first, third, and fifth. From this group, those who met the following criteria were selected: (a) having an I.Q. between 90 and 110, as measured by the California Short-Form Test of Mental Maturity, (b) of the middle socio-economic range, as measured by the Minnesota Scale for Paternal Occupations, and (c) having progressed at the normal rate through the grades. The result was a population of 20 subjects per grade for the first phase of the study. The secondary study of different language environments consisted of 10 subjects from each of grades 3 and 5.	Unstructured situation: Free and random speech was elicited from groups of two or three children by questioning about family and recreational interests and with the use of familiar figurines representing story book characters. From the resulting verbalizations, 25 consecutive structural units were selected for each child, resulting in 500 sentences at each grade for the analysis. Structured situation: Each subject told a story motivated by the film, The Hunter and the Forest. The total response was analyzed because no one spoke over 25 sentences.

FIGURE 2 (CONTINUED)

STUDY	SUBJECTS	ORAL LANGUAGE SAMPLING
Shubkagle, 1960; Francis, 1962	Shubkagle: 100 third grade children, chosen randomly from a Midwestern U.S. population of 573 Francis: 100 first grade children, 47 boys and 53 girls.	Same as Degraff's unstructured situation. The 25 consecutive units were begun where the subject was speaking with the most spontaneity and with little or no adult stimulation (as was also true of Degraff's sampling).
Loban, 1963	338 subjects, drawn from eleven kindergartens, stratified on the basis of SES, sex, racial background, and intellectual ability. Two subgroups were chosen from the total sample, one of high language ability and one of low ability.	The subjects responded to a series of 6 pictures. The total response of each was analyzed.
Khater, 1961	57 kindergarten children, chosen to represent the two extremes of social class, upper and lower.	The language was elicited in two types of group activities. a fifteen minute conversation and two fifteen minute discussion periods in which the teacher presented a problem and each child responded to it in turn. 50 consecutive structural units per subject were analyzed.

FIGURE 2 (CONTINUED)

STUDY	SUBJECTS	ORAL LANGUAGE SAMPLING
Templin, 1957	480 subjects, 60 at each of the following age levels: 3, 3.5, 4, 4.5, 5, 6, 7 and 8. Attempted control of age, sex, I.Q. family constellation, language spoken at home, bilingualism, twinning, impaired I.Q., and defective hearing.	50 verbal utterances, usually consecutive, were chosen from responses to picture books and toys. Transcription - long hand.
Harrell, 1957	320 white, English speaking grade 4, 6, 8, and 10 students (ages 9 1/2, 11 1/2, 13 1/2, and 15 1/2 respectively) with no apparent speech defects--40 subjects of each sex per grade.	A ten minute black and white film, The Three Bruins in the Woods, was used to elicit the oral language. The total response of each subject was analyzed.
Riling, 1965	300 subjects, from a Southwestern U.S. area, chosen to represent grades 4 and 6 and, at grade 4, Negro and Caucasian. (100 from each of three groups: grade 4 Caucasians, grade 4 Negroes, and grade 6 Caucasians.)	Each subject responded individually to one picture. Their total responses, to a maximum of 25 phonological units were included in the analysis.
Hunt, 1965 (written)	57 subjects, 9 of each sex at grades 4, 8 and 12. Average I.Q.: 90-110.	The sample consisted of the first 1000 words written under teacher supervision during the year of the study. No constraint on subject matter.

FIGURE 2 (CONTINUED)

STUDY	SUBJECTS	ORAL LANGUAGE SAMPLING
O'Donnell *et al.*, 1967	30 subjects at each level, kindergarten, and grades 1, 2, 3, 5, and 7 (approximately 15 of each sex--the only control).	Each subject responded to two short films. *The Ant and the Dove* and *The North Wind and the Sun*, by telling the story and answering preplanned questions. (Grades 3 to 7 responded in writing also.) The total response of each subject was analyzed.
Levin *et al.*, 1967	24 subjects, 6 at each of four grade levels, kindergarten, second, fourth, and sixth, chosen from one school serving an "upper middle-class neighborhood." (3 boys and 3 girls from each level.)	Following three brief physical demonstrations, each subject responded to two types of questioning. - "What happened?" to elicit description. - "Why do you think that happened?" to elicit explanation. The total response of each subject was analyzed.

APPENDIX E

Guidelines for Dysfluency Categories

1. Interjections of syllables, words or phrases

This category, often referred to as the filled pause, includes extraneous non-meaningful syllables such as: um, er, ah; words such as: okay, well, like; phrases such as: you know, let's see.

Theone that has to be most carefully evaluated is 'like' which is used quite frequently in a valid sense either as a verb, or when followed by a given example. If, however, it can be taken out of a phrase with no loss of meaning, as in:

'we could show - um - like - what the kids
do in school - like'

it is scored as an interjection.

2. Repetitions of syllables, words or phrases

These are scored if they are non-significant semantically. Example: 'our group - our group thought that we would pre - present the bad rules of our school and how - how they're treated you know'.

Whereas, repetition for emphasis as in:

'we're very very lucky

sould not be included in the scoring.

3. False Starts

An incomplete or self-interrupted utterance where the structure of the phrase is modified, or the semantic choice is altered, or the phrase is left incomplete; for example: 'and we got six - in - now we're doing - having six groups on the Middle Ages'.

4. Non-vocal hesitations

All breaks in the flow of language either within word groups (intra-phrase), or between word groups (inter-phrase). Placement

rather than length was the deciding factor for each of the two types.

The inter-phrase pauses were frequently, though not necessarily, accompanied by intonation changes, were more controlled by the speaker, and fitted in with syntactical and respiratory needs.

The intra-phrase pauses occurred in conjunction with repetitions, false starts, or after interjections. Others occurred in the middle of the sense-group.

Guidelines to Arrive at Total Number of Words in an Utterance

It is recognized that there are several ways of arriving at a total word count. For the purpose of this study, arbitrary decisions were made to:

(a) exclude interjections of syllables,

(b) include repetitions of words or phrases,

(c) count contractions as one word - I'm, we'll,

(d) count composite nouns as one word - courtyard; baseball.

APPENDIX F

SAMPLE TRANSCRIPTION OF ORAL LANGUAGE
PRESENTATION, SCORED FOR DYSFLUENCIES

Interjection:	syllable = IS	False Start = F	
	word = IW	Non-vocal hesitation:	
Repetitions:	syllable = RS	inter-phrase = #	
	word = RW	intra-phrase = 0	
	phrase = RP		

IW
Okay[0] when the bell rings[#] you follow the kids[#] up through the[0] hallways into their classrooms[#] then we'll[0] film them in their classrooms[#] doing different[0] projects and stuff like that[#] IW okay[0] then we'll RW we'll go through the hallways film the different teachers[0] in the school[#] and then the secretaries[#] then we'll go[0] RW go and film[0] the kids F doing[0] during their recess[#] watch them play baseball[#] and[0] fooling around on the sport tracks[#] then we'd go[0] RW go and film them in[0] their gym classes[#] one of the gym classes then[0] RW then F into the[0] IS um[0] when they're leaving[#]

APPENDIX G

EXAMPLE OF TEACHER RATING SHEET PROVIDING DATA
ON PERSONALITY TRAITS AND PREVIOUS SPEAKING EXPERIENCE

NAME: SCHOOL:

CODE NO.: TEACHER:

Please mark the line according to your estimate of the student.

1. In class, he or she is most often:

   Talkative _____ Silent

   i.e. taking part in discussion, volunteering information, asking questions.

2. Would you say he or she shows:

   Dependence _____ Independence

   i.e. able to make decisions, carry out activities.

3. With fellow students, does he or she seem to be:

   Popular _____ Unpopular

   i.e. has friends, included in games, subjected to teasing.

4. In general, the students in the class have spoken to audiences on:

   Few occasions _____ Many occasions